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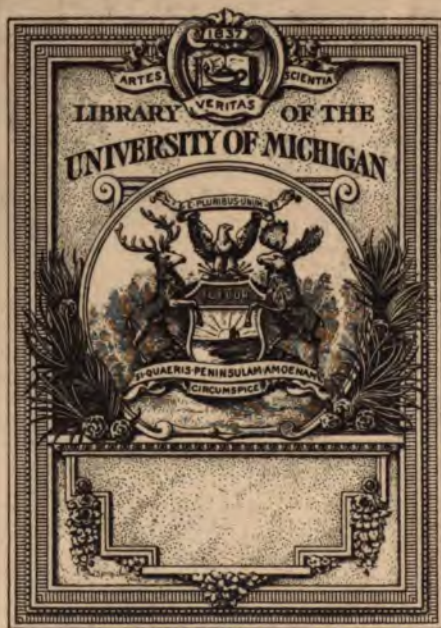
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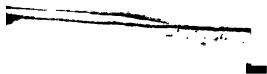
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RETROSPECT

OF

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PRACTICAL MEDICINE AND SURGERY,

BEING

A Half-Yearly Journal,

CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND PRACTICAL
IMPROVEMENT IN THE MEDICAL SCIENCES.

EDITED BY

W. BRAITHWAITE, M. D.,

LATE LECTURER ON MIDWIFERY, AND THE DISEASES OF WOMEN AND CHILDREN
AT THE LEEDS SCHOOL OF MEDICINE, ETC.,

AND

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PRACTICAL MEDICINE.

DISEASES AFFECTING THE SYSTEM GENERALLY.

ART. I.—ON GOUT, RHEUMATISM, RHEUMATIC GOUT, AND SCIATICA.

By DR. HENRY WM. FULLER, Physician to St. George's Hospital.

[Dr. Fuller considers rheumatic gout a disease *sui generis*—totally distinct from gout, and equally so from rheumatism. It resembles scrofulous inflammation more nearly than rheumatism in its nature. "Rheumatic gout has a history and pathology of its own."]

Pathological research has shown that in the earliest stages of the disease the capsules of the affected joints are distended with fluid, the synovial membrane is thickened and intensely vascular, and vascular tufts or excrescences exist at the margins of the cartilages; that as the disease progresses the fluid is absorbed, the interarticular fibro cartilages are also absorbed, and eburnation of the articulating surfaces takes place; that the heads of the bones become enlarged and altered in shape by the occurrence of interstitial absorption in some parts and of irregular osseous deposits in others; and that foreign bodies of varying consistence and character are often developed both within and without the joints—bodies which are sometimes cartilaginous, sometimes bony, sometimes attached by longer or shorter pedicles to the synovial membrane or to the ligamentous structures, and at others are loose within the articulation. It has shown that these changes may take place slowly without any general febrile disturbance or any acute local inflammatory action; and on the other hand, that they may be preceded and accompanied by fever, and by pain, heat, and inflammatory swelling of the parts: that the bursæ and sheaths of tendons in the vicinity of the affected joints are prone to be implicated in the mischief, but that neither in the joints nor in the adjacent bursæ or sheaths of tendons are any of the ordinary products of inflammation found—there is no lymph, and no pus, and no urate of soda, as in gout. In other words it has shown that the characteristic changes which occur in the joints as the result of rheumatic gout take place independently of active inflammation, and that the acute inflammatory action which sometimes precedes or accompanies these structural changes is simply a complication of the disorder, and by no means necessary to its perfect development.

And what are the conditions under which these structural alterations in the joints occur? They are not met with in the robust or vigorous, in well-fed persons with sound constitutions and sedentary habits; they do not arise, like the deposits of urate of soda in gouty men, in connection with excessive indulgence in the luxuries of the table, and defective excretion consequent on a diseased condition of the kidneys. On the contrary, they are more common in women than in men; very frequently arise in persons who lead a temperate life, and are small eaters, and never present themselves in persons who are constitutionally sound, unless they have been subjected to some cause of nervous exhaustion and enfeebled health. Their favourite victims are the offspring of consumptive parents, and especially weakly women—women whose constitution is either originally delicate and unsound, or

who from some cause or another have fallen into ill health. Amongst men, the most common exciting causes of the disease have appeared to me to be the cachexia which oftentimes follows excessive venery or syphilis, or the sleeplessness and exhaustion consequent on ill-treated gonorrhœal rheumatism, or the depression resulting from anxiety, or from excessive and long-continued mental exercise, or from over-fatigue or chill in persons of a delicate constitution or scrofulous tendency; whilst in women the disease is often traceable to the cachexia entailed by perversion of the uterine functions. It attacks the girl just arriving at puberty, in whom these functions are ill performed; it invades the stiffening articulations of the woman who has arrived at that time of life which is marked by the cessation of the monthly periods; it shows itself during the state of debility which follows a miscarriage or a difficult or protracted labour, more especially when the labour has been accompanied by flooding; and it is a common sequel of over-long suckling.

But whatever the exciting cause of the disease, its primary or essential cause is the same in all instances; and although we are unable as yet to point out the precise nature of that cause,—although we know little of the morbid chemical actions which take place, and are at a loss to account for the peculiarities in the nutrition of the affected parts by which this form of disease is accompanied, it is impossible to doubt the existence of a special form of constitutional disorder. The history of the complaint, its course and symptoms, and its pathological effects, all indicate the agency of some cause distinct from that which occasions gout or rheumatism. Our inability to demonstrate the nature of the chemical changes in the blood, or, in other words, to prove the formation of a special poison, is not a valid argument against the existence of such a poison. The same line of reasoning would be equally conclusive against the existence of any special form of blood-disorder in small-pox, typhus fever, scarlatina, and pyæmia. The fact is, our means of analysis of organic fluids are at present so imperfect, and we know as yet so little of the influence exerted on the functions of assimilation and excretion by modifications of the nervous power and other similar agencies, that in this, as in other forms of disease, we cannot even offer a reasonable conjecture as to the character of the chemical changes which take place, or as to how those changes are brought about. All that chemistry has as yet enabled us to assert is the bald fact originally pointed out by Dr. Garrod that the blood in these cases does not, like the blood in gout, contain uric or lithic acid.

Thus, then, as there is no very certain mode of diagnosing this disorder, and as, if it is to be treated successfully, its special character must be recognised early in the attack, I will endeavour to bring before you certain facts which will serve as guides to a correct diagnosis.

I would premise that the disease may make its approach either in an acute or in a chronic form. In the latter case, its true character is not likely to be mistaken; but in the former it often resembles an attack of acute rheumatism so closely as to tax our powers of diagnosis to the utmost. There may be heat of skin and profuse perspiration, furring of the tongue, loading of the urine, acceleration of the pulse, and pain, redness, and swelling of the affected joints—symptoms which, to a greater or less degree, are always attendant on acute rheumatism. But even from the first there are certain peculiarities which ought to excite suspicion as to its nature. The skin, though hot, is less so than in acute rheumatism; the perspiration does not possess the peculiar rheumatic odour in any marked degree; the pulse, though quick, is feeble; the tongue is usually less furred; and the local pain and swelling are seldom confined to the knees and other larger joints, but invade the wrist and small joints of the fingers; they are more persistent than the inflammatory swellings of true rheumatism, and they attack a larger number of joints simultaneously.

If the true character of the disorder is overlooked at the first, a few days' *ervation at the bedside* ought to rectify the diagnosis. The symptoms *yield to alkalies*: the tongue cleans, the heat of the skin subsides, and

any slight odour which may have attended the perspiration speedily disappears; but the skin remains constantly bedewed with moisture, and becomes daily more flaccid and less elastic, the pulse gets weaker, and the pain and swelling of the smaller joints assume a more prominent aspect. The inflammation, however, though continuing so obstinately, is not so acute, and does not appear to threaten the integrity of the joint, as true rheumatic inflammation does under similar circumstances. When true rheumatism fixes obstinately on a joint, the fear of permanent mischief and ankylosis of the joint at once presents itself to the mind. The inflammation of the other joints subsides, but the pain and swelling in the one joint increase daily; and it is obvious to the merest tyro in medicine that if that joint be not kept motionless, and leeches, blisters, and fomentations, or mercurial ointment applied, ankylosis of the joint is the most favourable issue which can be expected. But it is otherwise in respect to the inflammation of the joints which accompanies rheumatic gout. Rarely, indeed, in the acute form of the disease, is the inflammation confined to one joint; on the contrary, three or four, or even a larger number, of the joints remain affected throughout. There is not the same heat, or redness, or tenderness of the affected joints; the fear of adhesive or suppurative mischief does not arise; the application of a splint, and of leeches and blisters, does not suggest itself; and although the joints may remain permanently enlarged and distorted, they do not become ankylosed.

When the disease makes its approach more slowly, and assumes from the first a non-acute or chronic form, its features are much more distinctive. The patient feels weak, languid, and uncomfortable; she is oftentimes chilly, but nevertheless perspires on the slightest exertion; the appetite is capricious, the pulse feeble, the urine often pale and clear, and the spirits are much depressed. Up to this time probably there may have been no swelling of the joints, and possibly no wandering pains in the limbs, so that no suspicion is entertained as to the nature of the impending mischief. The ill-health is attributed to the effect of a mercurial course, to the drain resulting from an excessive flow of the monthly courses, to profuse leucorrhœa, to amenorrhœa, or to one of the many causes which are productive of ill-health, and which may have been present in the particular case in question. But after a longer or shorter period, some pain or stiffness is perceived in one or more of the joints. Not unfrequently a knuckle becomes stiff and swollen for weeks or months before any other joint is affected; and even though the knees or other of the larger joints be enlarged, the knuckles rarely escape. They are seldom red, inflamed, or very tender to the touch; on the contrary, they are relieved by gentle friction, and will often derive benefit even from tolerably active rubbing. Effusion within the joint is the principal cause of their enlargement; but the bursæ and sheaths of tendons around the joint are also implicated, and are felt as circumscribed swellings. Moreover, the mischief is seldom confined to the immediate vicinity of the joints, but the sheaths of tendons may be felt hard and swollen in the palms of the hands and in other parts more or less remote from the primary seat of inflammation.

In the more advanced stages of the chronic form of the disorder, the peculiarities of the case become even more apparent. Depression of spirits is a prominent symptom: the constant clammy moistness of the skin is quite characteristic; the extraordinary number of the joints implicated in the mischief is unlike what is observed in any variety of true rheumatism; and the form of the articular swelling is such as cannot possibly be confounded with the effects of rheumatism. It is obviously due, in great measure at least, to enlargement of the extremities of the bones themselves, and not merely to effusion within their capsules, or to the thickening of the surrounding structures. Thus a material alteration occurs in the form, and oftentimes in the direction of the joints. The fingers, for instance, are drawn towards the ulnar or outside of the hand, and take a permanently oblique direction; whilst the enlarged and partly dislocated extremities of the bones, more especially of the metacarpal bones, project in every variety of form, and constitute the nodosities which have been described by Dr. Haggarth in his "Clinical History of Disease."

Thus, then, to sum up the principal facts which have a practical bearing on the treatment of the disease, it may be stated: 1st. That the malady originates in mal-nutrition, resulting not unfrequently from some hereditary infirmity of constitution, but sometimes in connexion with cachexia induced by a variety of causes which exhaust the nervous system. 2nd. That the local changes to which it gives rise are essentially distinct from those produced by active inflammation, and more nearly resemble the results which might be expected from a slow perversion of nutrition; indeed, a similar tendency to the formation of exuberant osseous growths around the joints whilst the articular textures within are suffering destruction and decay is observed in malignant disease of the joints, and in various strumous affections of the joints, both of which are connected with a constitutional taint. 3rd. That whether in an acute or in a chronic form, the malady is one and the same, due to the same cause, connected with a similar failure of tone in the system, and productive of similar changes in the joints; the only difference observable between the results in the acute and chronic cases respectively being that in the former they occur more rapidly than in the latter.

If this view as to the nature of the disorder is correct,—and its whole history leaves little room for doubt on the matter,—it follows that any treatment to be successful must have for its object the sustentation of the general health and the restoration of tone to the system. Whilst this is being effected, means may be taken to subdue the local irritation of the joints, and thus to mitigate our patient's suffering; but the primary object must be to improve the health, and so to check the continuance of those actions on which the enlargement and distortion of the joints depend. The remedies which are most serviceable in rheumatism and gout are of little avail in this form of disease. Colchicum, iodide of potassium, guaiacum, hot baths, vapour baths, and other similar remedies, if prescribed with a view to eradicate the disease, prove mischievous rather than beneficial. They depress and enervate the patient, who is already low and exhausted; and thus they serve to establish the disorder which they were given expressly to get rid of. In private no less than in hospital practice the mischievous results which follow this mode of treatment almost daily force themselves on my attention. In short, if the remedies above named are to be employed at all in the treatment of rheumatic gout, they should be used cautiously as alteratives in conjunction with tonics, and should not be administered as agents to be relied upon for the cure of the disease. The more I have seen of this form of the disorder, the more thoroughly have I discarded the views which, in common with other medical men, I formerly entertained respecting its treatment, and the more completely have I learned to trust to tonics and occasional alteratives. In the acute stage of the disorder it may be necessary for a few days to administer alkalies and alterative doses of blue-pill or calomel, and to restrict the diet to broth or beef-tea; but when once the true nature of the malady has declared itself, I believe that in the majority of instances the more successful plan, notwithstanding the acute character of the symptoms, is to administer bark or quinine in combination with small doses of alkalies, and as soon as possible to interpose and check the continuance of the enfeebling, clammy perspiration by means of a cold shower-bath or the dripping-sheet. Indeed, whether the disease be in an acute or in a chronic form, the general state of the system and the ever-varying condition of the secretions are the only rational guides to treatment. If, as often happens when the disease is chronic, the secretions are tolerably regular and healthy, if the bowels are acting daily, and the alvine dejections are of a natural colour, if the urine is clear, and remains so on cooling, and if the skin is neither dry nor damp and clammy, the most effectual remedies are bark, quinine, strychnine, iron in its different forms, cantharides, arnica, sarsaparilla, the mineral acids, and cod-liver oil; and they must be given in doses proportioned to the amount of depression they have to counteract; further, their action must be assisted by fresh air and exercise, change of scene, and a generous diet: meat twice or three times daily, with a full allowance of porter or ale, and wine, are *essential adjuncts to the treatment*. On the other hand, if the motions are pale,

calomel or blue-pill must be given as alteratives; if the urine is loaded with lithates and the bowels are torpid, these secretions must be regulated in the ordinary way by the exhibition of purgatives and alkalies; the diet at the same time must be more or less restricted, and malt liquor prohibited. But even in these cases care must be taken not to depress the patient; and while brandy, or gin, or whisky is substituted for the malt liquor and wine, an endeavour should be made to discover some nutritious food which the patient can digest and assimilate. If the skin is clammy, and the shock of cold water is followed by reaction and warmth of the surface, a cold shower-bath or the dripping-sheet should be employed daily, for nothing tends so powerfully to stimulate the capillary circulation and restore the tone of the system.

You will always do well to inquire whether your patient ordinarily enjoys better health in winter or in summer, in cold weather or in warm,—as the reply you obtain will serve as a tolerably trustworthy criterion as to whether she is likely to be benefited by cold water. When a patient who is suffering from rheumatic gout tells you that she is usually stronger and more vigorous in cold weather than in hot, you may confidently recommend the daily use of a shower-bath. It will brace and stimulate her, and will contribute as largely to her recovery as any medicine you can administer internally. There is nothing more remarkable in the whole range of therapeutics than the rapidity of the improvement sometimes observed under the influence of this remedy. Even when a patient tells you that she is not much affected by temperature, but that she is often chilly and dreads cold water, I would urge you not to be deterred from having recourse to its assistance. The chilliness in such a case is dependent on the vitiated condition of her blood, and not on any innate delicacy or any deficiency in her power of resistance to cold: consequently the shower-bath, by imparting a stimulus to the system, will conduce to the better performance of the various functions of the body, and so to an improvement in the condition and circulation of the blood, and to a cessation of the sense of chilliness. If you are not consulted until the patient has been greatly reduced by illness, and has a feeble pulse, and scarcely sufficient power to enable her to rally from the shock of the shower-bath, you may order the dripping-sheet, as you have seen me do, with excellent results, under similar circumstances. The shock is somewhat less, and so also is the chilling effect on the system. But I would have you bear in mind that it is impossible *à priori* to determine whether reaction will take place after the shock of cold water. Sometimes a person whose circulation is so weak as to render it improbable that she would be able to withstand it, will feel refreshed and invigorated by it, and will glow with warmth in a few minutes afterwards; whereas, another person, apparently stronger and less reduced by illness, will be chilled and exhausted by it, and will suffer from cold the whole day. One or two trials, however, will settle this question, and the bath is such an important agent in the treatment of these cases that the matter ought never to be allowed to remain undecided. The only cases in which its effect is doubtful are those in which the patients, even when in health, were always better in summer than in winter, and have always suffered from cold. In these cases, if the clamminess of the skin appears to require the use of the cold shower-bath, a small quantity only of cold water should be employed. The patient, when taking it, should stand in hot water, and a cotton sheet should be thrown round her as soon as she steps out of the bath. With these precautions there are few persons who cannot withstand the shock of the water, and as few who will not benefit by it.

Another point is relative to the use of a cold douche, and the means of obtaining one. A few jugs of water poured on the affected joint are of little or no service in these cases: the force of the water is not sufficiently great, nor is its action sufficiently sustained. In none of the London or provincial general hospitals with which I am acquainted, nor in most of the towns in the United Kingdom, is a good douche-bath to be found, and therefore if we wish to avail ourselves of this valuable agent in the treatment of stiffened joints we must either send our patients to a hydropathic establishment, where this species of bath is admirably arranged, or extemporize one for ourselves at

residences of our patients. Fortunately, it is not difficult in most houses to arrange an efficient douche-bath for the knees and ankles—the parts to which this description of bath is specially applicable. All that is required is a large tap, communicating with a cistern of water placed at a considerable elevation above it. Two yards of India-rubber tubing affixed to the tap will suffice to carry the stream of water towards the affected joint, and a large, empty bath will receive it as it flows. You may think this a trivial matter for me to dilate upon, but if you are really in earnest at your work, and are aiming at the attainment of proficiency in relieving human suffering, you will not despise the smallest matters which can contribute towards the object you have in view.—*Lancet*, Sept. 26, 1863, p. 355.

2.—ON THE TREATMENT OF RHEUMATIC FEVER.

By Dr. J. BIRKBECK NEVINS, Lecturer on Materia Medica, Royal Infirmary School of Medicine, Liverpool.

[The plan of treatment recommended by Dr. Nevins is one which he has tried extensively for above fifteen years, though he does not claim the credit of originality. During this period he has also tried the various plans in vogue, viz., the opiate, the alkaline, the lemon-juice, and the do-nothing treatment, but he has always returned to his accustomed plan.]

It is impossible to observe many cases of rheumatic fever without being struck by the periodicity of the disease, as shown by the general aggravation of the pain and other symptoms as night comes on, and also by the copious sweating which enfeebles the patient, rather than relieves him. The long continuance of the illness, and its liability to return after apparent recovery, and the length of time requisite for regaining strength, are also well known features. In some of these particulars, but especially in its periodical exacerbations and in its sweatings, Heberden and others, and Dr. Davis of University College, in a very able paper on the subject, have at different times noted its similarity to ague, and advocated the employment of cinchona or quinine for its cure; and it is this drug upon which I look as the basis of the treatment to be proposed to you. At the same time the experience of the profession generally has shown the great value of iodide of potassium in chronic rheumatism; and, remembering the tendency of this disease to become chronic, I always combine this medicine with the quinine, and commence their administration *from the earliest date at which the patient comes under my care*. The presence of acute pain and high febrile excitement does not, in my experience, form any objection to their employment; and the thick creamy fur upon the tongue disappears more rapidly under their use than under the different methods which I have compared with it, in my own practice, or when noticing that of my brethren in the profession. The dose never exceeds two grains of quinine four times a day, with five grains of iodide of potassium added to each dose.

The pain and loss of rest are, however, so distressing to the patient, that we have been advised to administer opium in quantities only limited by the effect produced. And the employment of this drug as far as may be necessary for subduing the pain is a very important point; and I therefore always leave two or three doses of opium pill or of Dover's powder with the nurse, which are to be given successively, if the patient is in severe pain; but I very rarely indeed find that the patient has even asked for more than a single dose in the twenty-four hours, which I attribute to the speedy and more permanent relief obtained by the following element of the treatment, to which I attach very great importance. This is, *the employment from the very first of steam-baths, even when the patient is so helpless that it is impossible to move him from the bed on which he is lying*. These steam-baths relieve the pain and check the distressing perspirations in a degree which I have failed to obtain by any other mode of treatment; and they are administered with the greatest ease in the following manner.

A couple of common red bricks are to be placed in an oven hot enough for baking bread, and in half an hour or little more they are sufficiently heated for the purpose. The patient's body-linen having been previously removed, these two bricks are to be folded up in a piece of common thick flannel thoroughly soaked in vinegar and laid upon two plates; and one is to be placed about a foot distant from one shoulder, and the other about equally distant from the opposite leg;* and the bedclothes are then to cover the bricks and the patient closely round his neck. A most refreshing acid steam-bath is thus obtained; and the supply of steam may be kept up, if necessary, by removing one brick and replacing it with another hot one kept in reserve. When the patient has been in the bath for about fifteen or twenty minutes, the bedclothes and plates should be removed, and *the patient instantly mopped all over very rapidly with a towel wrung out of cold water*, and then should be quickly rubbed dry.† Dry warm linen must be put on at once, and dry bedclothes must replace those which were on the bed previously. The patient generally experiences great and speedy relief from this bath. The exhausting acid sweats are materially diminished; and the necessity for opium, as already mentioned, is almost at an end.

But here the objection naturally presents itself: a patient in rheumatic fever suffers so severely from the slightest attempt to move him, that we are frequently obliged to leave him several days without changing his linen, from the pain occasioned by the attempt to remove it even leisurely; and we have just been told to change it quickly, which implies that the case cannot be a very severe one, or this direction could not be carried out. The difficulty is really of the most trifling character, if the simple precaution is adopted of tearing the night-shirt open from top to bottom down the back. The sleeves are then slipped over the patient's arms almost without moving them; and the torn edges of the linen are gently tucked under his side, from which they can be just as easily withdrawn the next day. And by this means he is freed from the discomfort of lying day after day in linen soaked with acid perspiration; and this is done without the smallest pain to himself or trouble to his nurse. For many years I used large lumps of quicklime, and wrapped them up in cloths soaked with cold water; and as soon as the lime began to slack, the patient was enveloped in a steam-bath from simple water; but in many places it is difficult to obtain quicklime, and the vinegar is also more refreshing to the patient; so that the vinegar and hot bricks have now quite superseded the lime-bath.

These, then, are *the essentials of the treatment: quinine and iodide of potassium from the first, and the steam-bath, with the subsequent cold sponging*; and as an adjunct, opium in small doses, when necessary, to procure sleep.

It now remains to speak about the success of the treatment. During the fifteen years it has been in use, I have only had occasion to apply a blister over the heart in three instances; and this was done because the patient complained of uneasiness in the chest, not because there was any distinct evidence of pericarditis. There has not been one case of distinct rheumatic affection of the heart; but the absence of clinical reports puts it out of my power to state how many cases have been thus treated. I can merely say that they have been numerous.

Next, as regards the duration of the disease; it is extremely rare that it is necessary to give two steam-baths in bed, the patient being almost always able to have the second whilst sitting upon a chair; from which you will draw your own conclusion as to the rapidity of improvement. I am surprised when the patient is not able to walk about the room, a little at any rate, in little more than a week; and I have a strong impression that he is more frequently able to do this within the week than not. But here, again, the ab-

* Care must be taken not to put the bricks too near the body. I have known the thigh blistered in a patient who was unable to move away from the heat which was accidentally very near it. A dry napkin thrown over the wetted one will prevent this accident, if the bed is too narrow to allow sufficient space.

† The under sheet can be removed, and a dry one substituted by fastening the corners of the dry sheet to those of the damp one. Very little difficulty is generally met with in simply drawing the old sheet from under the patient, when the dry one follows it, and is left in its place.

sonce of exact reports must be taken into account. I further think that from two to three weeks is the average duration of the case before the patient is able to walk up and down stairs, and to go out of doors for exercise or pleasure. Relapses are not common; and the patient has not the lingering convalescence which I have observed under other methods of treatment.

The steam-baths and subsequent cold douche should be continued after the patient is able to walk about, as they contribute to the healthy action of the skin, and promote the free mobility of the joints.*

If there is great tenderness of any one particular joint, an opiate embrocation, containing in addition either chloroform or tincture of aconite should be gently painted over the part two or three times a day; but, in the early stage, the employment of friction appears inadvisable whilst the pain is very acute.

The recommendations of the method now presented to you are: that the patient's strength is husbanded from the first, and he has neither the protracted disease nor the lingering convalescence often observed. Pain and sweating are more quickly relieved than by any other treatment I have seen. Relapses are very rare; and so far I have not seen any case of cardiac affection occurring as a consequence of the rheumatism. I have a strong conviction that, if the method is fairly used in two or three cases, it will leave the same favourable impression upon the minds of those who try it that it has produced upon my own, and upon the students who have watched its employment in the hospital to which I have alluded.—*British Medical Journal*, August 1, 1863, p. 113.

3.—ON THE TREATMENT OF ACUTE RHEUMATISM.

By Dr. THOMAS INMAN, Physician to the Liverpool Royal Infirmary.

I know no fallacy in medicine upon which theories have been built more marked than that the sour smelling perspiration is evidence of the elimination of a poison, and that the poison eliminated is an acid, and consequently that alkalies are the remedies *par excellence*. The peculiar smell is simply the result of decomposition. The theory is as untenable as one founded upon the ammoniacal smell of a baby's foul napkin. Only fancy the absurdity of treating a bad typhus case with some acid because the bed linen smelt ammoniacal from the effect of incontinence of urine and the difficulty of renewing the sheets frequently! Yet on precisely similar grounds the generally received pathology of acute rheumatism has been based!

When such an untenable proposition is held by medical professors, a theory so baseless as to prevent the adherence of any one with ordinary common sense, we ought to be more charitably disposed to other theorists than we are and have been. But ignorance is always intolerant and will continue to be, in spite of moralists.

Since I have adopted Dr. Rees' suggestion, however, and treated my patients with lime-juice alone, the result has been far different.

During the ten years I have been a hospital physician, I have had under my care a hundred cases of acute rheumatism, and all of them have been treated with lime-juice at the rate of eight ounces per day. In five the heart has become affected, but in all, the affection has been transitory. Not one has left the hospital with a permanent cardiac disease. One patient died suddenly; he had recently had pneumonia as a complication, which passed off

* These baths are very easily given by placing the patient naked upon a chair, and putting a can containing a couple of gallons of boiling water under it. Blankets are then to be folded round his neck, and made to surround him like a tent, reaching to the floor. In about five or ten minutes, a red-hot brick should be put into the can, which renews the supply of steam. The patient soon perspires; and in fifteen or twenty minutes the blankets should be removed, and a couple of quarts of cold water should be poured over his shoulders: or, if he is afraid of such heroic treatment, he should be mopped from head to foot with towels wrung out of cold water. By this means he is invigorated instead of feeling weakened, and depressing perspirations do not follow the bath. The patient should sit upon a pillow or doubled blanket, on a close-bottomed chair, not upon an open cane-bottomed one. I have known a patient scalded by the accidental neglect of this precaution.

in two days; he was well enough to sit up in bed, and was talking vivaciously, when he suddenly died—no *post mortem* was allowed.

The average duration of the cases under my care is fourteen days; but this is made so high by ten of unusually long duration and great initial severity. In one very interesting example the duration was due to artificial lime-juice having been fraudulently substituted for pure by the druggist, and being used until I discovered the fraud by the impotency of the medicine: while at the Liverpool Northern Hospital four days generally sufficed for convalescence; and during seven years, only one case lasted for three weeks. Successive junior house-surgeons, fresh from the London Hospitals, as they arrived went through an interesting course of sneers, doubts, and confidence.

On being elected to the Liverpool Royal Infirmary, however, the plan met no such conspicuous success, and from the region of confidence I was myself beaten back into the domains of doubt.

Thus stood the point: London men, after a trial of the virtue of lime-juice, gave a verdict of not proven. The physicians at the Liverpool Royal Infirmary, at the very time when I, at the Northern Hospital, was meeting with a success which surprised myself, gave the medicine an ample trial, and abandoned it as unsatisfactory: and when I was transferred to the same institution, my own experience tallied with theirs. While at the one place I saw case after case so bad one day that all motion was impossible and the patients crying with the intensity of their sufferings, and three days afterwards walking about the wards apparently quite well; and this occurred so frequently that a duration of a fortnight in the hospital was an extraordinary occurrence. The sequence of cause and effect seemed as marked as any thing could be. If the lime-juice was not used in a sufficient quantity, or was old, bad, or fictitious, there was no improvement; but as soon as the proper quantity and quality was secured, the restoration was immediate. I could as soon doubt the efficacy of opium in procuring sleep as I could the efficacy of lime-juice in curing acute rheumatism. Yet in another part of the town, in another institution, I began gradually to lose faith in the remedy. The reason of this I cannot as yet make out. It may be, that there are varieties in disease of which we know little; that the complaint is influenced by local circumstances not yet thought of or understood. It may be, that, as some epidemics of small-pox are more deadly than others, so at one time the cases of rheumatic fever are mild, at others severe. It may be, that endemic influences vary in their intensity, just as malaria does; few now venture to deny the value of quinine in ague, yet every physician can recall instances in which it has been apparently useless.

To demonstrate, if possible, the cause of this uncertainty, I have treated my patients in a variety of ways. Having heard extraordinary vaunts of the value of large doses of carbonate of potash in one of the London Hospitals, I determined to test the plan fully. The result was a complete failure, and I was forced to the conclusion either that certain symptoms go by the name of acute rheumatism, which have no real claim to the title, or that experience gained in one locality is useless for another. As the doses used were in some cases sufficiently large to induce severe purging, there could be no doubt that the failure was not attributable to a feeble use of the drug.

After the carbonate of potash, I gave a full trial to the nitrate, after that to quinine, to opium, to wine, to steel, to cod-liver oil.

Nor did we omit the use of such simple remedies as liquor ammoniæ acetatis, and the still more simple one of pure water.

From none of these plans have I been able to obtain so satisfactory a result as from the treatment by lime-juice alone, although the balance in its favour over warmth, comfort, and nutritious diet, without medicine superadded, is not unvaryingly large.

The practical effect of the doubt, therefore, respecting lime-juice is simply to modify the belief in the constancy and certainty and celerity of its operation.

Of its superiority over any other medicine yet administered, I have no misgiving.

The way I employ it is simple:—the patient is directed to take at least eight ounces of it in the day, and no other medicament of any kind whatever is used, unless it be opium to procure sleep at night. If the skin is very white, the tongue much loaded, and the perspiration excessive, two drachms of the tincture of sesquichloride of iron is given in addition during the twenty-four hours, and some wine at dinner-time and in the evening. If, during the progress of the case, the hands or feet become unusually swelled or painful, they are merely wrapped up in cotton wool which has been freely sprinkled over with tincture of camphor.

If the heart become affected I make no difference in the plan proposed; I continue the lime-juice as if nothing unusual had occurred, with the full confidence that the complication will be evanescent, nor have I yet been deceived. When this accident occurs, mercury, bleeding, or cupping, seem to me to have the effect of aggravating the mischief and of rendering a transient complaint a permanent disease.

Of the *modus operandi* of lime-juice I can form no idea. Vegetable acids, *e. g.*, citric or tartaric, are not substitutes for it. Lemon-juice is inferior to it, though to a very small degree, so that we infer that it is not the particular acid which does the good. I have never known it purge, though it has seemed to gripe occasionally. It acts quietly yet almost certainly, as does arsenic in lepra, quina in ague, and colchicum in gout.

This treatment is very simple, and to the patient very pleasant. One of its chief advantages is, that it does not aggravate the extreme debility which attends and follows the fever.

It ought entirely to supersede the system of drenching, one so commonly practised under the notion that a poison had to be eliminated out of, or destroyed in, the system.

I must add, that since the preceding pages were written, I have had under my care three unusually protracted cases of acute rheumatism, attended with extreme debility, total anorexia, and a constant tendency to relapse. These gave me opportunity of testing the real value of every suggestion hitherto offered, and all drugs proved equally worthless for cure; this was at last effected, and suddenly, by simply change of air.

These cases seemed to unsettle the conclusion already drawn; to a certain extent they do, but that extent is small. We do not lose faith in arsenic because many a case of lepra is uncured by it; nor do we have less confidence in quina because we see at times a man who is cinchonized have an ague fit; we still believe in mercury though it often fails to remove "secondaries," and we still prescribe opium for the relief of pain, though it is powerless to arrest the agonies of gout.

In fine, we constantly have to confess that we possess no single panacea, that disease often baffles our best endeavours, and that the most skilful physician is but a man after all.

But though a man he may be a destroyer rather than a helper, and surely it is something to know how we may certainly escape being the former if we cannot invariably be the latter.

[Lime-juice may be procured in Liverpool at a shilling the quart bottle. It is generally taken out by vessels going long voyages. It is far more palatable than lemon-juice.]—*London Medical Review*, March, 1863, p. 458.

4.—ON DEPLETION AND EXCESSIVE (?) STIMULATION IN SERIOUS CASES OF ACUTE DISEASE.

By DR. LIONEL S. BEALE, Physician to King's College Hospital.

Although the arguments advanced in favor of depletion in acute inflammations and fevers have again and again been refuted, the idea that blood should be taken in inflammatory diseases still seems to be acted upon. If a patient has too much blood for the requirements of the system, or if the vessels of a particular part are over-distended, it is obvious that general or

local bleeding to a moderate extent may be of advantage to the patient; but undoubtedly, there still exists an impression that depletion is the right treatment to be pursued to *combat* inflammation.

It seems to be the opinion of some practitioners that pneumonia should be treated by depletion; nor is the general condition of the patient always considered. Attention is directed to the disease solely; and blood is taken because the practitioner believes that early bleeding will stop the spread of the inflammation, if not cause resolution of that already set up.

The old principles are to some extent believed and timidly acted upon; but few of those practitioners who hold that bleeding will cut short inflammation will be inclined to exhibit consistency in carrying out their principle. Some will bleed *because* there is pneumonia, and may deplete again *because* the pneumonia has increased; but no one will in these days bleed again and again if the disease continues to advance; nor would any one bleed very largely in what appeared to be a hopeless case from the first, as would have been the practice formerly.

The old theory of the nature of inflammation still continues; and the old practice based on it, although long since proved to be erroneous, is still acted upon to a limited extent; and both theory and practice prevent us from observing clinical facts without prejudice. Though forced to give up the old system of depletion, there are comparatively few practitioners who believe that when a large amount of lung is hepatised, and the patient breathing sixty or seventy in a minute, that it is right to give large quantities of stimulants. There are few who can completely abandon the notion that inflammatory processes are excited by stimulants—that to give stimulants in inflammation is to add fuel to the fire.

Nevertheless, it is admitted in practice that no severe case of pneumonia could be saved by active depletion; for it is known that time is required for the absorption of the matter occupying the air-cells of the lung. In a very severe case, the most momentous subject for consideration is how to keep the patient alive long enough for the process of absorption to take place; not how *the inflammatory process* may be cut short, reduced, or removed. For this purpose a line of treatment the very opposite to depletion must be adopted.

Many cases prove that, what would be called by many, excessive stimulation, does not *prevent* the rapid resolution of pneumonia. Stimulants do not increase inflammation, nor do they prevent absorption. Although the whole of one lung may be solid, excessive stimulation does not increase the rapidity or embarrassment of the breathing. In extreme cases, by excessive stimulation, life may be prolonged for a sufficient time to allow of the re-absorption of the matters effused. Disease is not *cured* by stimulants; but the patient may be kept alive long enough to get well. Here and there a life may be saved by giving as much stimulant as possible; but by carrying the opposite system to extremes, death is a necessary consequence.

In desperate cases of fever, pneumonia, rheumatic fever, and in other conditions where there is intense exhaustion, stimulation may be safely pushed to the utmost extent possible.

I shall not now discuss *how* stimulants in very large quantity influence disease, but shall, in conclusion, beg permission to direct attention to certain clinical facts which have been observed in many bad cases of pneumonia and rheumatic fever, placed under the influence of large quantities of stimulants (*eighteen ounces of brandy and upwards in twenty-four hours*).

1. The pneumonia does not extend.
2. The embarrassment of respiration is not increased, nor is the breathing increased in frequency.
3. The inflammatory products are absorbed, and free excretion goes on.
4. The pulse is not increased; but diminishes in frequency, and increases in power.
5. Delirium is not caused, but may be prevented from occurring; or if present, may diminish or cease.
6. The tongue may remain moist or become moist, and the fever diminish.

while a patient is taking *twenty-four ounces of brandy in as many hours.*—*British Medical Journal, July 4, 1863, p. 2.*

5.—ON THE HEMOSTATIC TREATMENT OF CHOLERA, HEMORRHAGE, EXHAUSTION, ETC.

By Dr. THOMAS A. WISE, F.R.S.E.

[The idea of Dr. Wise in this paper seems to be, that, as in certain diseases the blood leaves the extremities, the internal organs becoming intensely congested, by mechanically arresting a considerable quantity of blood in the extremities, many of the more urgent symptoms may be ameliorated.]

The circulation may be controlled in two ways—1st, by retarding the blood in the veins, and, 2nd, by stopping the circulation in arteries.

To retard blood in the veins of a limb as a therapeutical agent.—In patients with the premonitory symptoms of apoplexy, in severe cases of dyspnoea, in some organic diseases, and even in inflammation of particular organs, the temporary withdrawal of a certain quantity of blood from the general system, and its retention in the extremities, may sometimes be used with great advantage. It is easily accomplished by the application of a field tourniquet upon one or more extremities.

Stopping the arterial circulation in a limb.—It must not be supposed that a clamp or horse-shoe tourniquet, when compressing the chief artery of a limb, acts merely on the part, by stopping the circulation—it powerfully affects the whole system. If applied to the femoral artery, probably a pound, of the two pounds of blood intended for the limb, is prevented passing into it, and makes its way back to the heart, causing a more rapid and forcible circulation over the diminished circle.

2. As many diseases are local, and are connected more or less with morbid congestions of blood, which generally produce the pain and the derangement of the functions of the affected organs, by so closing a portion of the circle you thus enlarge the volume of blood, and increase the force of the heart, which has a most powerful influence in removing local congestions in the internal organs.

It is not, however, in every case that the treatment can be employed with the same good effect. It is in the large class of functional diseases that the partial stoppage of the circulation is of so much permanent use; and even in some organic diseases it may be employed with advantage by withdrawing so much blood from the circulating system of the part. By thus placing a ligature so as to press upon the chief artery of one or two extremities, the general mass of blood circulates through a smaller circle, and in some diseases produces a powerful tonic or stimulating effect upon the general system.

In those sudden and appalling cases of uterine hemorrhage the effect is very marked; and the fatal result is often arrested by this prompt and energetic interference. In such cases the patient is often left in a collapsed pulseless state, without the quantity of blood necessary for carrying on the vital functions, for which the strongest stimulants are used in vain; and in a large proportion of these cases, after a faint return of animation, the patient sinks into a state of collapse, and dies from exhaustion, without any further loss of blood. In such a case, the simple means of contracting the extent of the circulation, by closing one or more of the arterial trunks, will be of great advantage. Mr. Wardrop states that the effort of raising a patient, in such a case, and accidentally closing the humeral arteries, was found sufficient for nature to rally. This will be more effectually done by raising the limb, pressing the venous blood onwards, and applying a clamp-tourniquet to the humeral and femoral arteries, by which upwards of a pound of blood, sent to each limb, is stopped, and finds its way back to the heart. *This diminished vascular circle, and increase of blood, stimulates the heart's*

action, and the greater volume of blood has a powerful influence in strengthening the weakened system.

In the collapsed stage of cholera, when, in many cases, the physician first sees his patient, the system is so much prostrated that the most powerful medicines have no effect, the application of the tourniquet affords the only chance of cure. This most powerful remedy immediately removes the painful cramps, and produces the same equalizing effect as blood-letting, without the debility caused by this evacuation. It likewise increases the volume of blood, which stimulates the heart to increased action, removes morbid congestions, and, changing the morbid distribution of blood from the secreting surface of the alimentary canal, sets up a new and salutary action in their place. It thus affords the most ready and most powerful means of rousing the system. By this means the purging and vomiting are stopped, the pulse becomes stronger, the heat and strength of the system are quickly restored, and time is allowed for medicines to act.

The tourniquet may be applied to two or to the four extremities, according to the effect intended to be produced. When the individual is weak, and the state of collapse great, more care is required in emptying, by friction, the blood in the veins of the extremity to be banded; and the effect will be more marked if the tourniquet be applied to four extremities. It may be kept on for hours, or even for a day or two. In one case I kept the tourniquets applied for three days—as the exhaustion was very great—with the best effects; only relaxing one or more, as it appeared necessary. When reaction has taken place, by relaxing cautiously one or more of the tourniquets, so as to allow the blood to flow to the extremities, it afforded a ready means of relief. In a pretty extensive experience I have not seen any bad effects produced by the application of tourniquets. The effect, however, varies according to the stage and severity of the disease. When the patient is stronger, or when reaction has taken place, the pressure of the tourniquets is complained of—and much care is required to prevent the patient loosening them. If it be done too abruptly the blood spreads over the extremities, and the patient rapidly sinks.—*Dublin Quarterly Journal, August, 1863, p. 60.*

6.—ON SOME POINTS IN THE PATHOLOGY OF TUMOURS, TENDING TO ILLUSTRATE THE SUBJECT OF THEIR DIAGNOSIS.

By THOS. BRYANT, Esq., Assistant Surgeon to Guy's Hospital.

As a leading pathological principle it may, I think, be unhesitatingly asserted, "*that all tumours, with the exception of the hydatid, are made up of one or more of the natural elementary tissues of the body, and that in no single example has any extraneous or new element been ever detected.*" For just as the natural body is built up of cells and fibres in one or other of their different forms, so tumours are made up of like elements, although it may be in unequal proportions. Tumours, like the natural tissues, differ, therefore, anatomically, according to the nature of the elementary structure of which they are composed; and this again appears to be materially determined by the part of the body in which they are developed.

From this, therefore, a second leading principle may be fairly drawn, "*that all tumours partake of the nature of the part in which they are developed, and are more or less made up of the elements which naturally enter into its formation.*"

Thus a tumour developed in the stroma of a fibrous structure will probably be fibrous, if connected with bone more or less osseous, and if situated in a gland, it will, in all probability, partake of the gland structure.

The bearing of these pathological principles upon practical matters is by no means unimportant; for to the surgeon, who has once recognised the true position of a tumour, there is a certain amount of probability as to its

nature which will at once suggest itself to his mind. If the tumour be situated in the skin or subcutaneous tissue, there is a strong probability that it will be composed of some one or other of the structures of the tissue. It may be the sebaceous—which is never found in any other position—or the fatty, for these two materials enter largely into cutaneous structures; or it may be one of the fibrous or fibro-plastic nature—fibre-tissue existing freely also in these parts.

Should the tumour be located between the muscles of a part, there is again a probability as to its true nature, which will naturally suggest itself; for, as cellular tissue alone exists in these parts, the tumour will probably be composed of some of its elements, and these, being formed in excess, will give rise to the growth of a fibro-plastic tumour. Should bone, again, be the seat of the disease, some one of the elements of bone will, to a certainty, enter into its formation; the probability of its being an enchondroma, osteoid, or myeloid tumour, naturally presenting itself. And, lastly, should a tumour be present in a gland, such as a breast, uterus, or prostate, the probability of its being an adenoid cannot be overlooked; for pathologists now all recognise the fact of the close resemblance of tumours so situated to the natural gland structure.

These remarks, however, apply principally to simple tumours; for it must be borne in mind that cancerous or embryonic cell tumours may exist in any part, cells entering naturally into their formation.

All tumours are either simple or cancerous, innocent or malignant; the simple or innocent approaching in their nature the more highly organized natural structures of the body, even to the perfect glandular; and the malignant or cancerous simulating the most elementary or embryonic; for as the normal tissues were formed from a simple cell, and those of a higher grade from its development, so the cancerous element is a simple cell, or the undeveloped embryonic nucleus.

In proportion, therefore, to the amount of the cell element in a tumour may its cancerous tendency be determined; and the greater the proportion of the fibrous or well-developed structure, the greater the probability of its nature being innocent or simple. The more a tumour simulates the natural structure of a tissue or gland, the greater is the probability of its being innocent; the more a tumour simulates the undeveloped cell structure, the greater the certainty of its being cancerous.

The formation of simple or innocent tumours is, therefore, to be explained by the unnatural growth or collection of some one or other of the simple natural elements at one spot; and the formation of the cancerous tumour is to be accounted for by an undue growth and repetition of the embryonic cell or nucleus, which should naturally have passed on to the development of higher structures.

Tumours never change their original nature, nor pass on nor degenerate into others of a different kind. A simple tumour is simple to the end, and a cancerous tumour is cancerous from the beginning. This opinion is a pathological fact, which it would seem unnecessary in these days of advanced pathology to lay stress upon; but, oddly enough, an opposite opinion is still repeated in some of the students' text-books, and this being the case, the truth may be again enforced. The above lines are not intended, however, to convey the impression that a patient, the subject of a simple tumour, may not become the subject of a malignant one, or *vice versa*, for such may unquestionably be the case; and after the removal of a simple tumour a malignant one may secondarily make its appearance. But no simple tumour by growth or degeneration will become malignant, as no malignant tumour will become innocent. It would appear, however, that in recurring innocent tumors there exists a tendency for such growths to present on each return, more the elementary character of the malignant growth. *Simple tumours separate tissues in their growth, but never infiltrate; cancerous, as a rule, infiltrate, and rarely separate.* No more important practical point can be brought forward to aid the surgeon in his diagnosis of a tumour than the above. For a simple or innocent tumour, however long it may be in growing, and however large a size it may

attain, will never do more than separate the parts between and beneath which it may be developed.

The bones may be absorbed by its pressure, but they will never be involved; and the skin may be so stretched and attenuated by its distension as to ulcerate or burst, but it will never be infiltrated with the tumour's elements. This fact is well exemplified by a close examination of the margin of a cutaneous opening, the result of over distension; for it will appear as if cleanly cut, or rather punched, at its edges, and never thickened or diseased.

With the majority of the cancerous tumours, however, a very different condition has to be described, for a cancer has the peculiar property of freely infiltrating all the tissues upon which it presses, and when near the skin this becomes rapidly involved. As the tumour approaches the surface, the integument first appears to be drawn down to it, and afterwards as though glued to its surface. At a later stage the skin becomes infiltrated with cancerous elements, and to the finger feels firm, fibrous, or tuberculated, and when ulceration has commenced, the edges of the skin are palpably indurated, thickened, and infiltrated with cancerous products.

The contrast between these different conditions of integument in the two classes of tumours is most marked and very important, forming a most valuable means of diagnosis in the extreme stage of simple or malignant tumours.

Simple or innocent tumours affect the patient solely through their local influence, and have no tendency to multiplication in other tissues, nor to involve the absorbents with which they are connected. Cancerous tumours not only affect the patient through their local influence, but have a marvellous tendency to multiplication in any part of the body, more particularly in the internal parts, and never exist for any period without implicating the lymphatics of the part with which they are connected.

This difference between the two classes of cases is most important, and forms a very valuable means of diagnosis even in an early condition of disease; for in a case of tumour, the nature of which is doubtful from both its local and general conditions, the presence or absence of an indurated absorbent gland (not an inflamed one) will weigh down the balance of doubt, and tend more strongly than any thing else to solve the problem; for it is as rare to meet with indurated glands in a simple tumour, as it is rare to miss them in a cancerous.—*Guy's Hospital Reports*, 1863, p. 212.

7.—ON THE RECURRING FIBROID TUMOUR.

By THOS. BRYANT, Esq., Assistant Surgeon to Guy's Hospital.

The name given to this class of cases very accurately defines their pathological peculiarities. They possess all the characters of the fibro-plastic tumour; but they possess one of the features of the cancerous, in so far as they have a constant tendency to return, after removal, either in the same place or in the neighboring parts, even to many times. In the pathological chain of tumours they are therefore unquestionably connecting links between the innocent and malignant growths. There is really nothing very distinctive in their external character by which they can be known. They are, perhaps, somewhat less dense than the ordinary fibro-plastic tumour, and are more rapid in their growth. Microscopically, they also possess more of the cell element than the innocent form, these cells taking on the caudate shape; but I know of no means by which a definite diagnosis can be made of such a growth. The more rapid the development of a fibro-plastic tumour, and the more cellular its structure, the greater appears to be the probability of its being of this nature.—*Guy's Hospital Reports*, 1863, p. 246.

8.—ON EPITHELIOMA, OR EPITHELIAL CANCER.

By THOS. BRYANT, Esq., Assistant Surgeon to Guy's Hospital.

In the last section a class of tumours (recurring fibroid) has been briefly illustrated, evidently forming a connecting link between the innocent and so-called malignant growths; for it has been shown that they are not so innocent as not to return after their removal, and not so malignant as to repeat themselves in the internal organs, nor to affect the body through the lymphatics, nor infiltrate the parts with which they come in contact. In the class of tumours we are now about to consider, it will be seen that a further and more advanced step is taken towards malignancy, for these epithelial tumours have both a tendency to return in a part after their removal, and to affect the system through the lymphatics. In rare cases, also, they may be found in the internal organs. These tumours, however, always affect the skin or mucous membrane, and never originate in any other tissue, but they possess this feature in common with the more malignant cancers, that they have a constant tendency to infiltrate the parts with which they come in contact, and do not, as has been already shown with the innocent tumours, simply separate them. They are the common forms of cancers found in the lip, tongue, cesophagus, vulva, clitoris, penis, and rectum; and may be described as the cancer of the skin.

Epithelial cancer is essentially an infiltrating disease; it is not, as the sebaceous and fatty, fibro-plastic and fibrous tumours, a distinct growth developed in the tissues and separating them, but it is, from its very beginning, an infiltration. It begins, as a rule, as a little wart or tubercle, and this gradually spreads; it may crack, fissure, or ulcerate, and when this latter stage has been arrived at, the careful examiner will at once observe its true character, for the integument forming its margin will be evidently infiltrated with the cancerous material, and will present the well-known indurated and everted edges, these appearances forming a marked contrast to the condition of integument which has been ulcerated or ruptured by overdistension in a simple or innocent growth, for these edges are never thickened, or infiltrated with new matter, unless it be with inflammatory products. As a local disease, this epithelioma may slowly progress for years, and cause little pain, inconvenience, or injurious influence. Five, six, eight, or fifteen years have passed away in some of the cases before me, ere advice was sought; and it may, indeed, continue for many years, and never affect the patient more than as a local disease.

Case.—Epithelioma of outer canthus of eye; excision.—A sweep, æt. 41. was admitted, March, 1860, with an epithelial cancer at the outer canthus of the eye, of eight years' growth. His health was good, and no glandular affection existed. It was excised by Mr. Poland, and recovery ensued.

Case.—Epithelioma of cheek; treated by caustics; recovery.—A fisherman, æt. 70, was admitted into Guy's, under Mr. Cock, in April, 1863, with a large cancer of the cheek, the size of a crown, and of six months' growth, the edges being very raised, thickened, and everted. It was destroyed by the frequent application of a paste composed of equal parts of chloride of zinc and plaster of Paris. The man left cured.—*Guy's Hospital Reports*, 1863, p. 251.

DISEASES OF THE NERVOUS SYSTEM.

9.—ON THE THERAPEUTICS OF CONVULSION.

By DR. CHARLES BLAND RADCLIFFE, Physician to the Westminster Hospital.

There is reason to believe that the diet in many cases of chronic convulsive disorder ought to contain somewhat more than an average quantity of oily and fatty matters, and somewhat less than an average quantity of lean meat.

There is reason to believe that gymnastic exercises are very beneficial in the great majority of chronic convulsive cases.

During the last three or four years I have seen several cases of epilepsy, chorea, and hysteria, in which undoubted good has resulted from the adoption of a regular course of suitable gymnastic exercises; and the more I see the more I am satisfied that a course of this kind is a very important adjuvant in the treatment of these and many other cases. I recall to mind more than one case of epilepsy in which the patient has said that he has often warded off an attack which seemed to be imminent by a bout at the trapezium; and I have at present a case under treatment in which good seems to have been done by adopting a practice recommended by Dr. Henry Silvester in the treatment of consumption—a practice which may perhaps be brought under the head of gymnastics. Having ascertained that the mere dead weight of the arms hanging by the sides reduces the amount of air which might be taken into the chest to the extent of ten cubic inches or thereabouts, Dr. Silvester proposes that a phthisical person shall now and then eke out his insufficient respiration by breathing in such a manner as to get rid of this weight—by breathing, that is to say, with the hands taking hold of something fixed at a sufficiently high level, or, what answers the purpose still more easily, with the hands clasped together and resting upon the top of the head. And this proposition appears to have much to recommend it, not only in phthisis, but also in other cases in which, as in epilepsy, the respiration is wanting in activity. I also think that a collateral argument in favor of gymnastics may be derived from Dr. Silvester's investigations upon artificial respiration, for these investigations show that as much as from nine to forty-four cubic inches of air may be made to pass in and out of the chest by merely pulling the arms upwards and then bringing them back to the sides, and that this movement of the arms is in itself a mode of performing artificial respiration which is more effectual than any other. Of course the beneficial influence of gymnastics is not confined to the respiratory function. On the contrary, this influence tells equally upon the circulatory and upon all other functions, as it indeed must do if it acts in this manner upon the respiration, for the activity of the respiration is a fair criterion of vital action generally.

There is reason to believe that the action of cod-liver oil is beneficial in the great majority of cases of chronic convulsive disorder.

Phosphorus is a suitable remedy in many cases of chronic convulsive disorder.

For the last four years I have used phosphorus in the majority of the cases of convulsion in which I have used cod-liver oil, and for the same reasons, and with the same results. I asked myself whether the fact set forth in the preceding table, that phosphorus is present in nerve-tissue, and that the amount of this ingredient seems to have some direct relation to the activity of the nervous function, being as much as two per cent. in adult life, and below one per cent. in infants and idiots, might not show that phosphorus is required as food by a weak nervous system—as much required, perhaps, as is iron in cases where there is a deficiency of red corpuscles in the blood; and this question, once put, seemed to require an answer in the affirmative. "In small doses," says Dr. Pereira, "phosphorus excites the nervous, vascular, and secretory organs. It creates an agreeable feeling of warmth in the epigastrium, increases the fulness and frequency of the pulse, augments the heat of the skin, heightens the mental activity and the muscular powers, and operates as a powerful sudorific and diuretic." In large doses, phosphorus, without doubt, is a caustic poison; in proper doses it produces the very changes which are necessary in epilepsy and in other cases of chronic convulsive disorder. In proper doses, and under the eye of a medical man, it is quite innocent of harm, and it may be productive of much good. This inference is that which may be drawn from what I have said; and this inference, so far as I can see, is not contradicted by experience. Given in the large doses in which phosphorus has been given in a few cases already on record, the good resulting may have been doubtful, very doubtful; but this experience is nothing to the point, for there is no reasoning in any case as to the effects of medicinal doses from the effects of poisonous doses. Given in medicinal doses I have seen enough to know that this

remedy may be given, not only without harm, but with the unmistakable promise of real and substantial good. The form in which I first gave the phosphorus was the phosphorated oil of the Prussian Pharmacopœia, a preparation which is made by dissolving twelve grains of phosphorus in a fluid ounce of almond oil, by the aid of warm water. About four grains of the phosphorus is taken up, and the usual dose is from five to ten minims. I gave this oil always with cod-liver oil, in a little orange wine, twice or thrice a day. In many cases, however, this mixture proved to be so nauseous that the stomach refused to tolerate it; and lately I have often given the oil and the phosphorus separately, using the ethereal tincture of phosphorus of the French Codex as the vehicle for the phosphorus. I have given the oil with tolerable regularity so long as it seemed to be wanted, and the tincture now and then, especially when the symptoms called for a stimulant. I direct one fluid drachm of the ethereal tincture to be mixed with two fluid ounces of sulphuric ether, and preserved in a capped bottle, the dose being half a fluid drachm to one fluid drachm, mixed with water at the instant of swallowing it. In the ethereal tincture of phosphorus of the French Codex four grains of phosphorus are dissolved in one fluid ounce of ether, and consequently the strength is the same as that of the phosphorated oil of the Prussian Pharmacopœia.

There is reason to doubt the suitability of belladonna as a remedy in many cases of epilepsy and other forms of chronic convulsive disorder.

I have for some time been in the habit of looking upon the dilatation of the pupil which results from the action of belladonna as an objection to the employment of this medicine in epilepsy, and in cases more or less akin to epilepsy; and my chief reason for so doing has been a growing impression that the alterations in the size of the pupil are due to vascular rather than to muscular changes in the iris, and that these alterations furnish an exact index to the condition of the circulation within the brain. I have, in fact, been led to agree with those physiologists who look upon contraction of the pupil as being in great measure due to a state of turgescence in the vessels of the iris, and upon dilatation of the pupil as being to the same extent the consequence of an empty state of those vessels. I have been led to do this, partly by thinking, as did Bichat, that the pupil enlarges in the dark, not because there is then an end to the "irritation" which had kept certain sphincter fibres in a state of contraction so long as they are acted upon by the light, but because the iris had passed out of a state of expansion, which state was determined by the action of the light—a view which brings the movement of the iris in the light and the movements of the cushions of the sensitive plant under similar circumstances into the same category; and partly by reflecting upon the history of five cases of acute cerebral meningitis which have been under my care during the last eighteen months. In these cases I saw the pupil contracted to its utmost limit when the symptoms denoted unequivocal active determination of blood to the head, and dilated before this state was developed and after it had passed off; and the more I pondered upon these phenomena, the more I became convinced that the size of the pupil was dependent upon the condition as to fulness or emptiness of the minute arteries and capillaries of the brain; that, in fact, the pupil became contracted because the vessels of the iris participated in the arterial turgescence of the brain, and that the pupil became dilated because the vessels of the iris participated in the emptiness of the cerebral vessels. And I was also confirmed in this opinion by remembering that the pupil contracts when the eye and the whole of the corresponding side of the head become injected with blood as the result of dividing the cervical sympathetic in that side, and that the pupil dilates when this vascular injection is made to pass off by galvanizing the divided sympathetic above the line of section. In the dilatation of the pupil resulting from the action of belladonna, therefore, I have had what seemed to me a plain proof that this remedy produced an anæmic condition of the brain, and an equally plain objection to the use of this remedy in epilepsy and in any other cerebral disorder in which there is reason to believe that the brain and nervous system generally are in

an anæmic rather than in a hyperæmic condition; and I can say, without any hesitation, that I have seen no such unequivocal good from the practical employment of belladonna in these cases as to lead me to disregard this theoretical objection. Upon this point, however, I may not have seen enough to enable me to form a sound conclusion.

There is reason to believe that opium may be a more suitable remedy than belladonna in some cases of epilepsy and in some other forms of convulsive disorder.

Opium differs from belladonna in causing contraction of the pupil instead of dilatation; and, therefore, for the reasons set forth in the last paragraph, opium differs from belladonna in producing a hyperæmic instead of an anæmic condition of the brain, and in being suitable in cases in which belladonna is not suitable—in cases where the brain is anæmic rather than hyperæmic—in cases, it may be, of epilepsy among others. As yet, however, I have met with few cases in which I have thought it expedient to test the correctness of this theory by putting it in practice.

There is reason to doubt the efficacy of zinc as a remedy in epilepsy, and in cases akin to epilepsy.

I am disposed to look upon zinc as having an action upon the system which is directly opposed to that of iron. Iron, as all know, has an astonishing power of favouring the nutrition and multiplication of the blood-corpuscles. Zinc, on the other hand, blanches the system, and induces, before long, the state which was once known as *tabes sicca*, and for which no other name has yet been devised. Zinc, indeed, exercises a peculiar desiccating influence upon the system. Dr. Pereira mentions the case of an epileptic gentleman who took daily, upon an average, twenty grains of oxide of zinc until he had swallowed 3,246 grains, and who at the end of this time was pale in the extreme, sallow, wasted away, almost idiotical, with the tongue thickly coated, the bowels constipated, the inferior limbs cold and œdematous, the abdomen tumid, the arms cold and shrivelled, the skin dry and almost like parchment, the pulse slow, thready, and scarcely perceptible. This patient experienced no change for the better in his fits; but he soon recovered from the effects of the zinc under appropriate treatment. I have also myself seen four cases, different from this one only in being not quite so severe, and I have met with many cases in which the prolonged use of zinc, in one form or another, has produced decided sallowness and bloodlessness of the complexion. I find also that brass-founders, who are exposed to the fumes of deflagrating zinc, are often dried up and wizened in a curious manner. And Dr. Greenhow has recently shown, in addition, that these men are apt to suffer, particularly in the afternoons of the days spent in the casting shop, from what is called "brass-founders' ague"—a disease beginning with malaise, tightness or constriction in the chest, nausea, repeated rigors, ending in profuse sweating after a short and faintly marked hot stage. Here, then, is evidence that zinc is capable of producing a form of convulsive malady—for rigor is a form of such malady—as well as of producing the *tabes sicca* which has been described.

There is reason to believe that alcoholic stimulants are the most trustworthy antispasmodics in the prevention and treatment of convulsion.

The wider experience of the last four years has not shaken my convictions upon this point. On the contrary, I do not remember any one case in which there was not something to strengthen these convictions. I have very recently seen a case of aggravated chorea in which there had been no sleep for five days and nights, and no cessation to the movements of any moment, in which a wineglass of port wine given every half hour, with an egg beaten up in the alternate doses, produced quiet and sleep in ten hours, and in which a continuance of the same treatment, only in a less vigorous style, left the patient well, so far as the chorea was concerned, in a week; and I could cite other cases, at least three, to the same effect. I could also cite many cases of epileptic and hysteric convulsion averted, or its recurrence prevented, by means of a proper use of alcoholic stimulants.

There is reason to believe that bloodletting, in one form or another, may be

permitted in certain cases of convulsion, in order to prevent certain consequences of the convulsion.

There is nothing in the pathology of convulsion to justify the notion that convulsion is likely to be prevented by bloodletting; but it is not difficult to understand that cases of epileptic or epileptiform convulsion may be met with in which the veins of the brain may be so gorged with black blood as to put the patient in imminent danger of apoplexy, and in which this danger may be somewhat lessened by abstracting a small quantity of blood. And possibly this may be no wrong practice in such a case. At present it is plain that past experience is too much disregarded in this matter. Why, it may well be asked, if moderate bloodletting be so serious a matter, should a woman require periodical bleeding to keep her in health? Nor must the astonishing power of multiplication belonging to the blood-corpuscles be lost sight of in this matter. Speaking of the rapidity with which an anæmic patient became convalescent in St. Mary's Hospital, Dr. Thos. King Chambers says—and what he says requires no further comment—"She weighs 8 stone, or 1,792 oz.; of this 2-7, or 512 oz., is blood; and of this blood $\frac{1}{10}$, or 60 oz., should be red globules. Now, the analyses of MM. Andral and Gavarret show that in cases of anæmia of at all a marked character (as this was) we may expect at least three-fourths of the red blood-discs to disappear; so that when she came into the hospital it may fairly be assumed that she did not possess more than 15 oz.; and now I think she may be assumed with equal fairness to have got up to 45 oz., which is conceding that she still wants a quarter of perfect health. By this she must have made 20 oz. of red blood-discs—that is the most important organic constituent of upwards of 150 oz. of blood—in a month!"

Therapeutically as well as pathologically there is, in fact, every reason to believe that the means to be employed in the treatment of convulsion are those which exalt, and not those which depress, vital action.—Lancet, June 6, 1863, p. 626.

10.—ON CHOREA.

By Dr. W. S. KIRKES, Assistant Physician and Lecturer on Medicine at St. Bartholomew's Hospital.

[It is now pretty well agreed that an inflammatory affection of the left valves of the heart, indicated by morbid sounds or excited action during life, or proved by structural changes after death, is a very frequent if not invariably accompaniment of chorea. Hence these questions arise—Does the chorea produce the affection of the valves? or does the latter lead to the former? or, again, are they both the result of some one common cause? Dr. Kirkes inclines to the truth of the last, and considers that it is brought about by the blood (previously deteriorated by the rheumatic poison if it has existed) being rendered impure by the introduction of inflammatory products and fibrinous particles from the diseased valves. This theory explains the fact that the chorea is an "almost invariable" attendant upon the state of the valves, whilst it may not occur at all in rheumatism only, or not for several months after its subsidence, and during the continuance of valvular mischief only.]

There are strong grounds for believing that in chorea the nervous system is, from hereditary tendency or acquired predisposition, in an unduly susceptible state, also that this state of morbid irritability is connected with imperfect nutrition of the nervous centres, and lastly, since the choreic phenomena resulting from such nervous irritability appear to be often developed by, or at any rate closely associated with certain other functional or organic disorders, such as mental shocks, disturbed digestive or uterine functions, rheumatism, but, above all, with affections of the cardiac valves, the indications for treatment become plain.

These are, first, to remove, if possible, and guard against the recurrence of, such of the just-named sources of additional irritation as may be de-

tected, be they of nervous, digestive, uterine, cardiac, or any other kind of origin. In case of distinct evidence, or even a suspicion of a rheumatic diathesis, explaining the attendant valvular disease, the alkaline treatment of rheumatism may be safely employed in conjunction with other measures. Secondly, to give tone to the debilitated nervous system by promoting its more perfect nutrition. Hence the great good of generous diet, cod-liver oil, special neurine tonics, such as quinine, iron, zinc, and arsenic, in most forms of ordinary chorea. Hence, too, the great use of out-door exercise, gymnastics, and other methods of promoting nervous and muscular activity, for by thus increasing the healthy discharge of normal function, healthy nutrition is best maintained and increased. These, and other general measures of a like kind, such as cold sponging, or the shower-bath,—provided it be borne well, and does not overshock and frighten, as it very often does,—are applicable to nearly all forms of chorea, and are often sufficient to promote their cure. But when we have to deal with the acute and violent forms of this disorder, additional means have commonly to be adopted. The chief object, then, must be to put a stop as speedily as possible to the violent involuntary movements, and to the attendant sleeplessness, for if these continue long they tend almost certainly to kill by exhaustion, hence the indication, thirdly, to tranquillise the highly excited nervous system, and procure sleep. Nothing appears to accomplish this so readily as the use of opiates, combined with diffusible stimulants. Opium, morphia, or henbane, with ether or ammonia, in doses proportioned to the age of the patient, the degree of effect they produce, and the violence of the symptoms, and repeated at regular intervals, will often in a few hours mitigate the violence of the choreic movements, and in a few days lead to their almost complete removal. In the more furious examples, however, injections of laudanum into the bowels, repeated inhalations of chloroform, or the subcutaneous introduction of a solution of morphia, may be advantageously substituted for, or adopted in conjunction with, the preceding. In addition to these sedative measures, the employment of wine, or, in the more urgent cases, even brandy, often seems to be remarkably productive of good. The benefit resulting from this combined opiate and stimulating plan seems to prove, as before remarked, that the nervous excitement on which the choreic movements depend is in great measure the result of exhaustion; the opiates allay the excitement, and the stimulants counteract the exhaustion and retard tissue change, while, at the same time, the rapid waste of nervous energy occasioned by the involuntary movements and prolonged sleeplessness is greatly reduced thereby. Meanwhile, measures for repairing this waste and restoring the nutrition of the nervous centres can also be employed. Good nourishing food, with a liberal allowance of meat, eggs, and milk, should be given. Quinine, iron, zinc, or arsenic may also be administered simultaneously with the opiates and stimulants. A review of the treatment of the most violent forms of chorea recorded by others or treated by myself, has convinced me that the most successful and most speedily cured cases are those which have been treated on such a plan as that just advocated.—*Med. Times and Gazette*, June 27, 1863, p. 664.

11.—ON THE INHALATION OF OXYGEN, AMMONIA, AND BROMOFORM IN CASES OF EPILEPSY, SPASMS, AND PARALYSIS.

From cases under the care of Dr. RAMSKILL, at the Hospital for the Epileptic and Paralyzed.

Dr. Ramskill has lately been renewing his investigations on the administration and inhalation of oxygen in the treatment of various chronic forms of paralysis, of spasm, and epilepsy, also of the action of ammoniacal vapour and of bromoform in the same diseases, the last having especial relation to shortening actual attacks of epilepsy, as well as to preventing them.

The following is a brief history of the first case:—Nearly two years ago

the son of a chemist, 23 years of age, applied to the Hospital for the relief of what was diagnosed as syphilitic epilepsy. He had contracted syphilis two years before; had treated himself by the free use of mercury, chiefly blue pill and opium; secondary and tertiary symptoms succeeded; these were apparently cured by the iodide of potassium, but he was left weak, wasted, and cachectic. Eight months prior to his application, after exposure to cold and wet, he was attacked with headache, worst on the right side, and with some vertigo; these symptoms did not yield to treatment, and the iodide did not alter them. The dose never exceeded five grains. After a fortnight's suffering he had a succession of five epileptic fits, having an interval of a few minutes between each. The head symptoms then became much relieved, but he had a renewed attack of a batch of fits every fourteen or sixteen days, varying in severity, and occasionally leaving a temporary paralysis of the left lower extremity.

He was tall, very thin, of gaunt, dark aspect; his face was covered with acne of a livid, and suspiciously tinted colour, and he had several large boils about the back of the neck, which had been caused by blisters, frequently applied, with a view of preventing his fits. As he was a tolerable manipulator, according to his own account, in practical chemistry, it was suggested by Dr. Ramskill that he should make oxygen gas, and inhale it twice or three times daily, stopping the inhalation only on the accession of giddiness or other uncomfortable symptoms, and that he should continue the iodide of potassium in the same dose as he had hitherto taken, viz., five grains twice daily in sarsaparilla.

The result was that the cachectic aspect began to disappear, the boils vanished, and at the end of three months he reported having had only one series of fits, and those of a very light character. He had recovered a healthy aspect. Lately he was accidentally met with looking in perfect health, and he stated that beyond the one series of fits, he had not suffered from an attack for sixteen months.

The treatment at present pursued by Dr. Ramskill consists, for children, in the inhalation of atmospheric air drawn through a glass inhaling apparatus one-third full of solution of peroxide of hydrogen. The solution must be highly charged with oxygen, or the gas is not given out with sufficient freedom. The inhaling apparatus is also gently agitated by an attendant during the process, and a hot moist cloth kept wrapped round it. The inhalation is continued until some sensible effect is produced on the pulse or on the feelings of the patient. The slightest feeling of giddiness is considered a sign of sufficient action. Some children appear quite insensible to such a quantity of oxygen as the solution throws off; in these cases bladders containing the pure gas are substituted. In either case the peroxide of hydrogen is given internally.—*Med. Times and Gazette*, July 4, 1863, p. 11.

12.—ON THE TREATMENT OF DELIRIUM TREMENS BY DIGITALIS.

By Dr. J. W. M. MILLER, Physician to the Royal Portsmouth Hospital.

[The following remarks are appended to a case of delirium tremens treated by digitalis.]

What is the value of digitalis in delirium tremens? This is a question still *sub judice*. It is now three years since the late Mr. Jones, of Jersey, brought his experience and views before the profession. In his hands the remedy appeared almost a specific; for out of seventy cases of the disease, sixty-six recovered without any other remedy. At first, this novel treatment received much favour, and digitalis was vaunted by many as a true antidote for alcoholism; however, its reputation has not been maintained. It has received an extensive trial from many practitioners in all parts of the country; and it is my opinion (judging from the cases which I have collected from many sources, as well as those which have happened in my own

practice) that, although digitalis is an useful remedy as a calnative, and possesses some advantages over opium, still it has no peculiar power over the disease itself. It does not cut short the attack by inducing sleep at once. Its action is directly upon the nervous system as a calnative, and soporific; at the same time, it stimulates the heart and augments its contractility. When it is given in large doses, there appears to be but little risk of increasing cerebral congestion and producing profound coma; and, therefore, it is especially indicated in those cases in which inflammation of the brain is threatened, and where the administration of opium would be attended with danger.—*British Med. Journal*, Sept. 5, 1863, p. 265.

13.—CASE OF TRAUMATIC TETANUS.

By Dr. JOHN K. BARTON.

Tetanus, always an interesting subject, is rendered doubly so at present by the fact that nicotine, first proposed as an antidote to strychnine, is now on its trial as a remedy for it, the question to be decided being, whether it has or has not the power to stop this terrible disease, or even to stay its progress. The following case has the additional interest attaching to it, that the patient was a medical student who had all but completed his curriculum, and was in consequence well known to many members of the profession, as well as to a large body of his fellow-students. It is well that the particulars of this case should be recorded, for some perhaps hearing of its rapidity and fatal termination, might hastily conclude that nicotine was quite powerless in such cases; or others, hearing vague accounts of its mode of administration, might infer that it had not been rightly employed or fairly tested. Accurate notes having been kept by those who watched by the sufferer day and night, both the action of the remedy and the progress of the disease can be alike plainly seen. Before entering on the details of the case, I should premise that the patient had been well known to me for several years; he had been under my care three or four times for palpitation of the heart, irritable dyspepsia, &c. He was of a very sensitive nervous temperament, odd, silent, and old-looking. Knowing the weak, irritable constitution we had to deal with, it was no surprise to us who knew the patient, that when the terrible disease of tetanus seized him, he should fall an easy victim in spite of every effort to save him.

Mr. W. H., a medical student, twenty-two years of age, had been reading for some months very hard for his medical examination, which he expected to pass in about a fortnight. Upon Monday, June 1, 1863, being in the College park, he joined some fellow-students in exercising on a trapeze which had been erected there for gymnastic practice. While thus engaged Mr. H. fell, it is not known exactly how, but he was severely stunned, so that those about him thought his neck was broken. Dr. Bennett, who was in College at the time, saw him immediately. When he came up he found him lying on the ground, evidently still under the shock of the accident. The only injury he had received was a compound dislocation of the metacarpo-phalangeal articulation of the right little finger; the dislocation had been reduced by one of his fellow-students. When Dr. Bennett examined it he found a lacerated wound between the little and ring fingers, extending about an inch and a half along the back of the hand from the cleft between these fingers; there was no bleeding. As soon as he had sufficiently recovered from the collapse he was removed to his lodgings, which were situated close by. Dr. Bennett saw him daily; every thing appeared to be going on very favourably. On Wednesday there was considerable œdema along the back of the head, and matter seemed to be forming; this, however, disappeared towards the end of the week. He was out each day as usual; his only anxiety being how he could manage at his approaching examination, as he feared he would not be able to write by that time. Upon Saturday morning Mr. H. felt poorly and depressed, and said to his friend, Mr. Pierce, who was living with him, that

he had a presentiment he was getting tetanus; his friend laughed at him, as he could give no reason for this feeling. Dr. Bennett saw him that day, and finding him depressed about himself, and complaining of wandering pains everywhere, asked him had he sore throat; he said not; then, while talking to him of something else, he passed his hand over the muscles of his neck and jaws, all which felt soft and pliable. During Saturday Mr. H. attended the University foot races, and walked about the park for three or four hours. He was noticed walking quickly and uneasily about by himself, his wounded hand thrust into his coat, with an anxious depressed look, the sports appearing to afford him no entertainment. He eat his dinner apparently with appetite, Mr. Pierce having seldom seen him eat so heartily. Immediately after dinner, however, Mr. H. began to complain of feeling his jaw stiff and of a severe pain in his neck, and at the same time he seemed very nervous and anxious about himself. His complaints and anxiety increasing very much as the evening advanced, his friend proposed going for me, as he did not know where to find Dr. Bennett then. Mr. H., however, starting up himself came off to me. It was seven o'clock in the evening when I saw him; he complained then of a severe constant pain in the back of his neck; said he could not open his mouth, and was evidently very nervous about himself. When asked to put out his tongue he protruded it half from his mouth, but said he could not possibly open his mouth any wider. No rigidity of any muscles could be felt except the masseters which were holding the mouth closed; whether this was involuntary, the result of nervous excitement in one whose mind was alive to every symptom of tetanus, or whether it was in truth the first symptom of the terrible disease itself was the question. His pulse was not above 80 and natural. In answer to his inquiries, I told him that of course his symptoms must excite suspicion of tetanus, but that it was not certain yet. As he stated his bowels were confined I prescribed a pill of calomel and aloes to be taken immediately, and sent him home to bed, promising to see him again in the evening. His appearance at the time was not what we are accustomed to call tetanic. The eye, although anxious, had not as yet that peculiar peering expression which we attribute to the disease. Having despatched a messenger to Professor Haughton requesting him to meet me early next morning, and give me the benefit of his advice and experience in administering nicotine if it became necessary, I found Dr. Bennett and we were soon by our patient's bedside; we found him lying on his back, his knees drawn up; pulse 92, full. He complained very much of the pain in the back of his neck. He had taken the pills, but said he found great difficulty in swallowing them. When his attention was directed to them, the muscles of his neck felt somewhat rigid, but when diverted to think of something else they were relaxed. The prominent symptoms were excessive nervous excitement and partial closure of the mouth. The fact of our patient being a medical student of a very nervous temperament, left the diagnosis still uncertain. We agreed that under the circumstances we would not be justified in giving him nicotine then. We spoke as cheerfully as possible to him and ordered a tumbler of warm brandy-and-water with a teaspoonful of chloroform to be given him at once; a warm poppy-head stupe was at the same time applied to the neck where he complained of the pain. Next morning (Sunday) we met soon after nine o'clock, Prof. Haughton being with us. Mr. H. had passed a restless night with occasional broken sleep, constantly moaning. His head was bent back; his chin projecting up, as he lay; his jaws firmly clenched together; unable to separate his teeth at all; the muscles at the back of the neck felt rigid; the sterno-mastoids were still soft; his face had now the fixed tetanic look; the eyes peering and ferretty; the abdomen was still soft. The reality of the disease was now but too plain, and the rapidity with which the symptoms had advanced since the evening before, warned us that not a moment was to be lost. As pain in the neck was still very badly complained of, we determined to begin by giving him twenty drops of liq. opii. sed. at once before commencing the administration of nicotine, which had to be sought for, as that which Professor Haughton had himself manufactured was made so long that he did not

like to depend upon it. At eleven o'clock Dr. Hutton saw Mr. H. with us; the symptoms had advanced very markedly since nine o'clock, the abdomen was now as hard as possible; the head bent forcibly back; the sterno-mastoids were also now rigid. Dr. Bennett had attempted some time before this to administer the opiate we had agreed to give, but the moment our poor patient made an attempt to swallow a few drops of the liquid a spasm of the glottis came on, accompanied by marked stridor, and such fearful distress that nothing could induce Mr. H. after this to attempt to swallow any thing, even the mention of swallowing some fluid later in the day brought on a spasm. Dr. Hutton looked upon the case as one which, judging from the rapidity with which the symptoms had advanced up to the present time, would be surely and rapidly fatal. He agreed with us that an attempt should be made to give nicotine by the rectum, and advised that chloroform should be constantly inhaled to relieve pain and spasm. Up to this time our patient had no general paroxysm of spasm. Some fresh-made nicotine having been obtained from Messrs. Bewley and Evans, by Professor Haughton, the first dose was administered at ten minutes to twelve; it consisted of two drops of nicotine with a full tablespoonful of brandy and about a wineglassful of warm water; a little of this was lost in the administration, so fully two drops was not given. The effect produced was very marked, the pulse rose in two or three minutes from 92 to 130, and at the same time a copious drenching perspiration broke out over the whole body. I had kept my finger on the pulse constantly since the dose was given, and felt it rapidly losing in fullness and strength as it increased in frequency. However, after a few minutes it recovered itself, its volume becoming good again. It seemed to me that the brandy administered with the nicotine prevented its depressing influence being felt too much. As these effects of the drug were produced the patient experienced some relief of his most urgent symptoms. He said he felt the pain better, and he thought his jaws were looser. At the same time he said he felt an extraordinary feeling of confusion in his head, while his perceptions remained perfect as before. The pulse gradually fell after the first quarter of an hour, so that at the end of an hour it was 108. The first severe paroxysm occurred about a quarter of an hour after the first dose was given, and while the effects I have been describing were being observed, it began, apparently at the glottis, the first notice of its approach being frothing at the mouth with lividity of the face; the opisthotonos was not intense, the head being dragged back as it were into the pillow, and the leg stretched out. We had intended giving two drops of nicotine every hour, but on account of the great effect produced by the first dose we determined to give but one drop. At one o'clock the second dose, consisting of one drop of nicotine, brandy, and warm water, was again injected into the rectum, this time without any loss.

The effect of this was much less marked than those produced by the first; there was no confusion of head complained of, but the sweating continued: there was no immediate effect produced on the pulse. This dose was repeated every hour until five o'clock in the afternoon, the pulse coming very gradually down. It was 108 at one o'clock; at half-past two o'clock it was 104; at half-past three o'clock 100; and at five o'clock 96. Since the first convulsion, which occurred soon after the first dose was given, there had not occurred any so severe, but there was an almost constant twitching at the back of the head, and about every six or eight minutes a more general spasm, with laryngeal distress and frothing of the mouth came on. At this time Dr. Hutton saw him again in consultation, and agreed with us that he had lost no ground during the day. He advised the continuance of the nicotine. Prof. Haughton being of opinion that it ought now to be given in two-drop doses every hour, this was done, it being combined as before with brandy or brandy and beef-tea, until eight o'clock in the evening, when he complained of some sickness of stomach, and the enema which had just been given came away, being the first which had shown any inclination to do so; he at the same time said he thought the bowels would be moved shortly. *The improvement already noticed had certainly increased since five o'clock;*

there had been no bad fit; his pulse was hot, 92, and his bowels were freely opened at half-past nine o'clock, no fit being produced by the necessary movement. Prof. Haughton was now of opinion that the full physiological effects of nicotine were produced, the smell of snuff was now perceived by him from the patient. As it would have been unsafe to carry on the dose as rigorously as we had hitherto done, now that the full effects of the drug were produced, we determined to give, during the night, two drops every second hour; at half-past ten this was given and retained, the bladder being emptied shortly afterwards without instrumental aid. At half-past twelve o'clock, when the next enema should be given, he seemed restless, had had two attacks of convulsions in quick succession, and his pulse was rising, being now 103. The enema was followed by another convulsive attack. Two advanced and intelligent fellow-students of Mr. H. had undertaken to carry out the treatment during the night. Dr. Bennett saw him at half-past one o'clock, and then gave chloroform, as the convulsive attacks were more violent than they had been, and more frequent. At four o'clock Mr. Vesey came for me, finding the pulse very rapid, and the paroxysms more frequent and violent. When I saw him soon after this, I found a remarkable change had taken place since eleven o'clock the night before, when I had last seen him. The head was no longer kept constantly and forcibly bent back, but in the intervals between the paroxysms lay naturally on the pillow; the mouth could be opened half an inch, the legs no longer were bent up as they had been, but were straight and stiff; the foot-board of the bed being broken by the violence with which during the paroxysms it had been struck by his feet; the pulse was 130, and full. When the paroxysm came on, which was the case soon after I entered the room, I noticed it did not appear to begin as before at the throat, but at the diaphragm, for he placed his hand on the epigastrium, crying out, "very tight here, very tight here." The paroxysm was preceded by a tremor of every muscle of the body, and invariably accompanied as it had been from the first with the ejection of a quantity of frothy mucus from the mouth. I began immediately again to give chloroform drop by drop upon a fold of lint laid over the mouth, with marked relief, as long as it was actually being inhaled; at about five o'clock I gave an enema of two drops of nicotine as before. It appeared, however, to me that it was no longer exerting the marked influence it had done in controlling the disease; it appeared now as if it was producing no effect whatever; the pulse 130; the skin no longer perspiring; the paroxysms of convulsions increasing in violence and frequency, except so far as they were restrained by the inhalation of chloroform, which was not carried far enough to make him at all insensible, but by keeping a single fold of lint slightly wetted with it over the mouth, great relief was afforded; if it was removed for more than a minute or two, he made earnest signs to have it again. At eight o'clock his pulse was 130, still full; paroxysms very violent; restrained in frequency by chloroform. He could now open his mouth and swallow very slowly a teaspoonful of brandy; at ten o'clock he had a very violent fit, beginning with a kind of general tremor of all the muscles; the glottis seemed to be completely closed for some time; the face becoming of a dark purple; it opened, however, before he was quite exhausted, and the air entered the trachea again with a loud stridulous sound. His pulse continued to increase in frequency, so as with difficulty to be counted. Respiration very rapid and laboured; paroxysms although restrained by the chloroform were occurring with increasing violence.

The mental faculties were perfectly clear to the last, and throughout the senses of hearing and sight seemed to be rather more acute than natural. At ten minutes past twelve he breathed his last, the immediate cause being another violent fit, such as I witnessed at ten o'clock. Before the spasm of the glottis relaxed, life had ceased, just forty-eight hours from the time when he himself first felt the premonitory feeling of the approaching disease, and not more than twenty-four since the first dose of the nicotine was given.

In this case it will be seen the earliest symptom was noticed upon the sixth

day after the receipt of the injury; from this the disease very rapidly advanced, so that upon Sunday morning, the seventh from the receipt of the injury, the disease was rapidly hastening to a fatal termination. Nicotine was then administered, and the symptoms remained without any advance, at least for nearly twelve hours; the full effects of the drug seemed then gained, and at the same time the improvement which had taken place was at its height. From this time the disease advanced, the drug appearing unable to check it. One very remarkable feature in the case was the change which took place in the groups of muscles affected. At four o'clock on Monday morning, his head was no longer bent back to the extent it had been, and his mouth admitted being opened somewhat, and shortly after he swallowed some fluid. At the same time, his legs, which had been kept flexed and separated from one another, were now straight and drawn close together, while the abdomen was very hard, and very severe pain complained of at the epigastrium, the diaphragm being evidently engaged more than it was before.—*Dublin Medical Press, July 1, 1863, p. 1.*

14.—ON THE THERAPEUTIC INFLUENCE OF PHYSIOLOGICAL REST IN PERICARDITIS AND OTHER INTERNAL DISEASES.

By JOHN HILTON, Esq., F. R. S., Surgeon to Guy's Hospital.

[We may fairly assume that friction upon the two free and inflamed surfaces, as in early pericarditis, must add materially to the local mischief. Hence Mr. Hilton assumes that the physician's first anxiety should be to quiet the action of the heart, and thus to moderate the friction and its ill effects. The treatment usually adopted with most success is founded really on this principle. Venesection, antimony, and digitalis act chiefly by their indirect effect in quieting the cardiac action.]

Let us say that the *origo mali* or the *vera causa* of the pericarditis, not traumatic, is, or may be, a morbid condition of the blood antecedent to the local inflammation; so that the local inflammation is to be considered only as a local manifestation of some general and diffused cause, in which the pericardium has unfortunately, in this instance, been selected; and we know that if the latent general cause, whatever it may be, be not successfully displaced by medicine or spontaneously exhausted, then the local inflammatory effusion of coagulable lymph becomes so accumulated round the oppressed heart that its rhythmical power is overwhelmed, and it ceases to act, thus closing the case with death.

With a view to the full and further appreciation of rest in idiopathic pericarditis, let us admit, for the sake of argumentative illustration, or of what I believe to be the right interpretation, that the effusion of lymph in this pericarditis results from the pathological element which was in the blood, and that the morbid condition of the blood has been exhausted by the inflammatory pericardial effusion, or that it has been eliminated by nature through some emunctory—kidney or some other organ—aided by medicine. May we not discover, I say, some good in the solid plastic effusion itself? I think we may—in the induced rest.

What is the mechanical influence of the effused lymph (which may or may not glue the two pericardial surfaces together) upon the serous surfaces, which are not only secreting but also absorbing surfaces? For it must be borne in mind, in anticipation of what I shall presently remark, that serous membranes are rapidly absorbing organs, very rapidly absorbing organs indeed. If the opportunity should be offered me, I hope to be able to adduce facts to show that the nervous depression which we term collapse, associated with laceration of the intestines, depends actually upon the absorption of some of the morbid fluid extravasated from the intestinal canal into the peritoneum. That absorption is one of the causes of collapse or nervous shock which is not usually considered in that light, but it has a very

important bearing in practice; and I have no hesitation in saying, from both clinical observation and experiment, that these serous membranes are very rapidly absorbing organs. Observe this illustrative case of absorption by the peritoneum. Suppose a person has an injury to the abdomen, which causes an extravasation of a large quantity of blood into the peritoneum. This blood consists of a certain amount of serum and coagulable blood. Now if the patient survive but a few hours, what do you find in the abdomen after death? No serum; every drop of it is gone. Gone where? All of it is absorbed. The clot of blood remains, but the fluid part of it has been taken up.

The result of the effusion of this inflammatory fluid is, that the serous surfaces become defended immediately from direct and intimate surface-friction; thus that possible source of irritation or local excitation is removed. Thenceforward this acquired rest, or freedom from direct friction, enables the serous membrane to recover itself by rest, and then to resume its not less important function of absorption. What I wish to convey, in a few words, is, that when effusion takes place upon the surface of the pericardium, that pericardium for a time is undoubtedly kept in a state of rest: it does not secrete any more fluid, and it recovers itself. This is precisely what happens in different parts of the body. For example, in the case of croup, when effusion of lymph takes place, the false membrane adheres for a time to the mucous membrane; the mucous membrane thus obtains a physiological rest, and the little glandular structures, imbedded in the submucous tissue, recover their strength through their physiological repose. They then renew their function of secretion, and pour out pus and mucus, and thus detach the false membrane. I think I might with reason compare (in relation to the subject of rest) the rapid effusion of lymph in pericarditis to the extreme callus formed by nature in cases of bad fractures. There is no doubt that the longer the inflammation of the pericardium continues the more unhealthy the membrane becomes, so that if inflammation of the pericardium becomes chronic or enduring, the pericardium acquires such an unhealthy condition that it will not perform its second function of absorption; and patients so affected are those who die with a large quantity of fluid in the interior of the pericardium, constituting dropsy of the pericardium. Thus if fluid be poured into a healthy pericardium, it is rapidly absorbed; if into a very unhealthy one, no absorption takes place: hence occur those dropsies that we so often see.

In pericarditis, with solid effusion, the original disturbing cause being removed (or having subsided by the general or constitutional treatment), we may affirm that the effused lymph has not only mitigated the local disturbance, but has been also the starting point of the local recovery, simply by preventing that irritation which otherwise occurs in the rubbing of the two inflamed surfaces upon each other, and by giving them absolute rest both mechanically and physiologically; so allowing the serous surfaces to resume their function of absorption, and to eat or drink up the temporary splint which had been poured out between them. For there is no doubt that solid effusion has been known to exist during life between the pericardial surfaces, recognised by certain diagnostic sounds which have subsequently ceased; and the patient dying some time afterwards, the post-mortem has proved that the whole of the lymph had disappeared, or had been absorbed.

We observe this same curative principle of acquired rest displayed in other parts of the body when suffering from inflammation, as will appear when I refer you again to the occurrence of solid effusion (callus) associated with the repair of some fractures of bones, and of the massive swellings which we see encumbering the exterior of inflamed joints, whether in cases of acute or of chronic destructive inflammation of the interior of a joint; the joint still, perhaps, going on to repair. When a cylindrical bone is fractured, what do you discover upon the exterior of the fracture, especially when the fractured pieces are not nicely adjusted, or are subjected to frequent local disturbance? We know that nature herself puts a splint upon the exterior of the bone, including the fracture, for the purpose of keeping

the fractured ends of the bone in actual rest, and that in truth this external splint is developed in relation to the necessities of the individual case. In a badly adjusted fracture, which is unavoidably a good deal distorted, or one in which the fractured ends are moveable upon each other, the callus or temporary splint is greatly augmented to meet the greater requirements in that instance for the insurance of mechanical rest; whilst in fractures not much disturbed and nicely adjusted, there is no external callus, only that internal soft callus which is interposed between the fractured ends of the bone.

But to revert to the subject of nerve-distribution. I might easily spread it out by showing the relation of another serous membrane—viz., the arachnoid membrane—to the fifth nerve (a nerve of sensation) and the facial or motor nerves of the face, and fix upon it some important points in practice; but time would not allow me to do justice to the illustrations, hence I must defer it to some other occasion.

Having examined the nerve-distribution associated with the joints and serous membranes, and pointed out some of its results as evidenced in the pathological symptoms induced by it in the diseases of those parts, I purpose now to consider briefly the same anatomical and functional arrangements as they are manifested in the mucous membranes and their directly-associated muscles. Let us look, for instance, at the conjunctiva, the orbicularis palpebrarum, and the skin covering the eyelid, in their due anatomical and physiological relations. These parts stand very much in the same relation to each other as the synovial membrane of a joint, the muscular apparatus moving that joint, and the skin over the insertions of the muscles. Thus we find that the facial nerve is one of the motor subdivisions of the great cranial compound nerve constituted by the large origin of the fifth nerve, as the sensitive root, and the third, fourth, fifth (motor portion), sixth, and seventh cranial nerves, which together form the motor roots of this cranial nerve; the whole of this nerve-association structurally resembling a common two-rooted spinal nerve. The sensitive root of the fifth nerve supplies the conjunctiva and skin with sensation, and the facial nerve supplies the orbicularis palpebrarum, the muscular apparatus, with motive power: these two nerves are most intimately associated both anatomically and physiologically; hence the constant and active sympathy between these parts. Now notice what happens when the eye is inflamed, or the light is too strong for the eye. The eyelids are immediately closed—the eye is placed in darkness, which is the eye's "rest." What a simple observation is this! how important in its relations, how widely applicable to general professional practice, is the law here exemplified and expressed! Here is an indication, a symptom, a typical expression on the part of nature which has been visible to mankind from one generation to another, and soliciting as it were apprehension; yet how little is it appreciated, how rarely made the guide to practice! Surely the neglect of such an indication is a great error, and requires correction. If the eye be inflamed (painful, irritable, red, congested, very sensitive) by exposure to a strong, glaring light, or to intense heat, immediately the eyelids are closed instinctively, thus adopting the principle of rest as a means to restoration. Tears are secreted, analogous to synovial secretions in joint inflammations, to lubricate the conjunctival membrane, to interpose a layer of fluid between the globe and eyelids, to prevent direct friction of the two mucous surfaces, and possibly to foment the eye. If the eye be thus kept in temporary darkness, free from friction, and thus rested, it will return in a few hours to its normal state without any other aid. The restoration of the eye to its healthy state is complete; thus making manifest the great power which nature possesses of rectifying and controlling the morbid effects of inflamed structure or deranged function by rest.

It is certainly a curious, interesting, and most instructive fact, and well worthy of distinct notice here, that the portion of the body in which nature displays most conspicuously her immediate appreciation of the value of rest in relation to its restorative power is the organ of vision—the part of the

human body, be it remarked, the most completely under the fullest observation of the surgeon, with the least amount of trouble to him, and where he may see most graphically expressed the evidence of the good to be derived from rest to the diseased or injured organ. The recuperative law of nature is in this instance unwittingly admitted, and its appreciation generally, if not universally, acted on in practice; for I suppose every living professional man of every grade, of every age, whether his intellectual acquirements be great or small, would advise the exclusion of light from an inflamed eye, which is in reality perfect rest to the organ, by removing its natural stimulus, and which in excess becomes a great source of excitation. This rest to the eye as a curative agent is instinctively adopted by nature, and it is also (as a matter of experience, if not the result of reason or reflection) constantly adopted by surgeons in their treatment of injuries or diseases of the eye. But I must add as a stigma and an opprobrium upon the mental perception of some of us, that although we recognise the law and the principle as applicable to the eye, we do not appear to see it so clearly, and certainly do not act upon it with the same fixed notions and the same precision, in its application to the other parts of the body when suffering from accident or disease. If the eye be inflamed, the first thing that happens is that the eye becomes placed in darkness in a dark chamber. Nature closes the shutters so as to exclude or intercept the rays of light, in order to give the eye rest, and for no other purpose; and all this is done automatically or instinctively. Well, if you admit darkness as necessary or important in the treatment of diseases of the eye, you will be compelled to admit as a principle the therapeutic value of rest in the treatment of diseases of the joints, and indeed in all inflamed parts.

Observe the effect of morbid action in another portion of the mucous membrane, in order to mark this same nerve-distribution. If you have an inflamed throat with inflamed tonsils, are you not constantly swallowing, in spite of yourself, and producing pain in the throat which you would be glad to avoid? What is it that incites this involuntary act of deglutition? It is an irritated or inflamed condition of the mucous membrane of the pharynx and palate which excites the associated muscular apparatus through the medium of the glosso-pharyngeal nerve and the pneumogastric nerves. You are constantly forcing and rubbing the inflamed tonsils, pharynx, and palate upon each other; and thus "swallowing" is excited frequently and painfully and against your will. This is exactly the same thing as irritation or inflammation of the synovial membrane producing contraction or spasm of the muscles moving the joint. This kind of case is best relieved by the local application of opium—by painting the throat with a solution of opium.

I saw not long ago, with Dr. Herbert Davies, of Finsbury-square, a gentleman who could scarcely swallow at all, for directly he put fluid into his throat it produced a violent and choking spasm. He was then nourished by nutritive enemata. I saw him endeavour to swallow fluid, but he nearly choked himself. I touched his throat with a camel's-hair brush, and a violent spasm was produced in the pharynx and larynx. Numerous and different gargles, weak and strong solutions of nitrate of silver, had been well employed, but without any advantage, and the patient was rapidly emaciating. I advised the use of a powerful anæsthetic to the irritable mucous membrane. I requested him to use a gargle containing prussic acid, and to swallow some of it. From the first time he adopted this plan of treatment he began to improve, and ultimately recovered. This application of prussic acid was adopted on physiological principles, merely for the purpose of reducing the sensibility and irritability of the mucous membrane, and of putting an arrest to the associated muscular spasmodic contraction. Subsequently this patient went to Hastings, and there the pharynx was painted with a solution of chloroform, upon the same principle of inducing physiological rest to the throat, and he got quite well.

Now take the larynx for illustration. Both the sensitive and motor nerves *to the larynx* are derived from the same pneumogastric trunk, and hence we *note that any irritation or inflammation existing upon the mucous surface of*

the larynx or of the laryngeal surface of the epiglottis induces excited muscular action immediately on the part of the associated laryngeal muscles. This irritable state of the larynx is usually treated by the local application of nitrate of silver, in solution, or in the form of a very fine powder, which is blown into the larynx; and the relief is sometimes very complete and speedy, by the physiological rest which it gives to the mucous membrane. I apprehend that rest is accomplished by the nitrate of silver acting upon the mucus and albumen, forming a solid albuminate of silver, constituting an adherent temporary covering to the mucous membrane; thus giving it rest by defending it from the atmospheric air, and so destroying for a time that nervous irritability and muscular contraction which produce a sense of suffocation. So, after all, the engendering of physiological rest is the curative principle, based upon the fact that the same trunk nerve supplies both the mucous membrane and the muscular apparatus of the larynx.

With regard to the epiglottis itself, I would remind you that its anterior or glossal surface derives its nerves from the glosso-pharyngeal, by which it, as well as the posterior third of the tongue, is associated with the pharynx preparatory to deglutition. This principle of nerve-distribution obtains throughout the whole distribution of the pneumogastric nerve—viz., the same trunk of nerve supplies the mucous membrane and the associated muscular apparatus. So it is with respect to the intestinal canal; the mucous membrane and muscular walls are supplied by the same nerves, causing direct sympathy between them. I have no doubt in the world that the effect of most purgative medicines is to induce irritation and increased secretion from the mucous membrane, and increased muscular contraction in the walls of the intestines; and I must express my conviction that the frequently-repeated introduction of irritating medicines into the bowels is very likely to do a great deal of injury by exciting muscular contraction, and thence diminishing the calibre of the gut; and that subsequently a great length of time, with carefully-managed diet, is required to replace the intestines in a perfectly healthy condition. Purgative medicines are, to my mind, in this respect, very often injudiciously administered for a continuance.—*Lancet*, July 25, 1863, p. 89.

DISEASES OF THE ORGANS OF CIRCULATION.

15.—A CHEAP SPIROMETER.

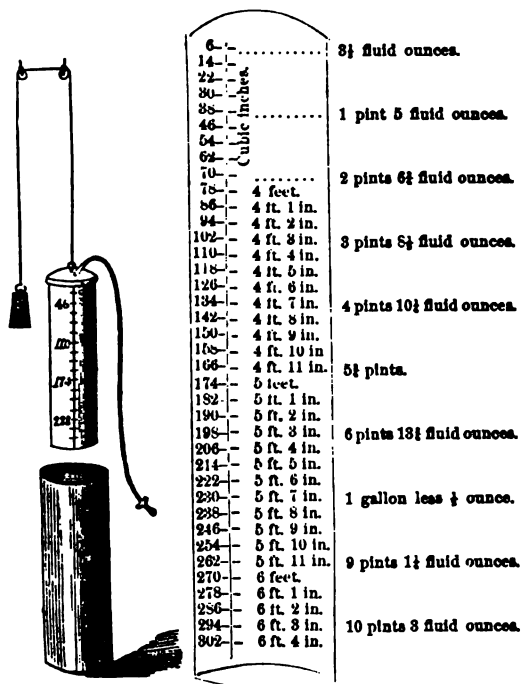
By, Dr. W. E. BOWMAN, Editor of the Canada Lancet.

A cheap spirometer may readily be made from two tin vessels similar in shape to those figured in the accompanying wood-cut; the one should be about 20 inches long and 6 inches in diameter, and the other 18 inches long and 5 inches in diameter. The latter may be graduated into spaces of eight cubic inches by means of our ordinary gallon measure, which is the old wine measure of Great Britain and the one that is adopted by the United States Pharmacopœia; it consists as everybody knows of 8 pints of 16 ounces each, the ounces measuring 1.8 cubic inches.

Having placed the smaller vessel perfectly upright, measure into it a gallon of water less half an ounce, and with a rule ascertain the precise distance from the surface of the liquid to the brim of the vessel, then placing this measure outside of the tin, mark the height of the water as 230 c. in. In a similar manner with half a gallon and 10½ fluid ounces, mark 134 c. in.

Next divide the space between these two points into 12 equal parts which will be measures of 8 c. inches each, and with the compasses continue the graduation upwards and downwards, placing the figures on the inverted vessel as here shown. If its diameter be everywhere alike the measure must be correct, its accuracy however may be readily tested by the annexed sub-

divisions of the same measure. The pulleys and counterpoise may now be adjusted to the graduated tin.



Next fill the larger vessel with water so that the smaller may be just covered when inserted as low as possible into it, and mark the height of the water on the inside of the larger tin. Then raise the small one gently until the 174 c. in. line appears even with the surface of the water, and make a second mark of its level. Finally put the third graduation in the large tin when the smaller is raised completely out of it.

Lastly, affix two or three feet of flexible tubing and a mouth-piece to the top of the small tin, and the spirometer will be ready for use.

The graduation inside of the large vessel is to detect and obviate any difference in the level of the water within and outside of the rising vessel, which after receiving the breath should be depressed until the water is at its proper level, the tube being closed by the fingers during the adjustment and reading off.

With this scale as a guide the York Glass Company of England has made me a beautiful spirometer of this form entirely of glass, and correctly graduated into cubic inches. It differs somewhat from this one in having a perforated glass stopper in the centre to which the silk covered tubing is attached; and also in having two cords, one on each side of the stopper, and four pulleys which prevent it from turning. Thus arranged mounted on handsome brackets, apart from its usefulness in ascertaining the presence and progress of phthisis, it forms an elegant addition to a surgery.—*Canada Lancet*, June 15, 1863, p. 27.

16.—ON THE TREATMENT OF APHONIA BY THE DIRECT APPLICATION OF GALVANISM TO THE VOCAL CORDS.

By Dr. MORELL MACKENZIE, Physician to the Dispensary for Diseases of the Throat.

The operation requires but little skill on the part of the operator, and still less fortitude on the side of the patient. Whether magnetic or chemical electricity be employed is not a matter of any importance; for, while I have invariably employed the former, Dr. Smyly, in his two very successful cases, used the latter.

To employ magnetic electricity properly, an assistant is required to turn the electric machine with one hand, and with the other to hold one sponge against the side of the neck, either over the situation of the pneumogastric nerves, or directly on the thyroid cartilage. The operator should hold the laryngeal mirror with the left hand, and with the right introduce the laryngeal galvaniser below the epiglottis. He now touches the spring on the upper part of the instrument with his index finger, and the current passes directly to the cords.

The woodcut shows the instrument* very well; and it can be seen that the current does not pass beyond the metal ring (B) till the operator touches the ivory handle (I), when the spring (S) connects the two rings (A and B); and the current then passes on to its destination. The irritation of a foreign body in the larynx causes the vocal cords to become tightly approximated, and thus it renders it easy to touch their upper surfaces. By placing the point of the laryngeal galvaniser on the arytenoid cartilages, both branches of the pneumogastric may receive the electric impression.

In conclusion, I may observe that I have employed galvanism to the larynx in more than thirty cases, and that no bad effect has ever followed its use. Most patients feel the electric action more acutely externally than in the larynx, though some have told me that they felt an agreeable sensation of warmth passing down from the larynx to the scrobiculus cordis. Others, again, have described a choking and pricking sensation in the throat.

The success attending the application of galvanism to the cords in aphonia will depend entirely on the proper selection of cases suitable for treatment. The absence of any structural disease or inflammatory changes, on the one hand, and a state of impaired innervation on the other, are, of course, the features which promise the most satisfactory results from this method of treatment.

The following two cases came under my care only the other day; and as they both illustrate very remarkably the value of the direct application of galvanism to the vocal cords, they are now added to the other reported cases. They both belong to that class in which "aphonia occurs as a symptom in conjunction with considerable disturbance of the nervous system."

Aphonia of Eight Months' duration cured by One Application of Galvanism to the Vocal Cords.—Jane R., aged twenty-three, a tall stout young woman, from Frenchem, was brought to the Dispensary for Diseases of the Throat on August 24th, 1863. She was suffering from complete aphonia, loss of



*The "laryngeal galvaniser" is made by Mr. Krohne, 241, Whitechapel road.

appetite, and considerable constitutional debility. She was not at all hysterical, according to her own account, nor did she appear to be so. She whispered to me that twelve months previously she had a very severe sore throat, which had been lanced and burnt with caustic by Mr. Knowles, of Farnham, under whose care she remained for five months. In December, 1862, being then extremely depressed and weak, and having scarcely recovered from her bad throat, she lost her voice; and since then she had never been able to speak a word out loud. Mr. Knowles recommended change of air, and so also did Dr. Cobb (formerly of the London Hospital). After a fortnight's residence in London, the patient applied at the Dispensary in the condition described.

On making a laryngoscopic examination, the approximative action of the vocal cords was seen to be very feeble; otherwise, the larynx was perfectly healthy.

August 25th. I galvanised the vocal cords, and the voice immediately returned. It was weak at first, but soon became full and strong. I only repeated the galvanism once (on the 27th); but the voice was really restored by the first application.

Aphonia of Five Months' standing cured by One Application of Galvanism to the Vocal Cords.—Miss Gertrude S., a pretty child, aged ten, suffering from loss of voice, but otherwise healthy, was brought to me, on August 27th, by Mr. Taylor, of Guildford. Mr. Taylor gave the following account of the little patient's aphonia. He was called to see her in March, when he found her sitting up in bed, and breathing excessively quickly. The physical signs did not at all explain the rapid respiration; and he was struck with its remarkably nervous character. An attack of bronchitis, in which the nervous symptoms predominated, afterwards developed itself; and on recovery it was noticed that the child had lost her voice. Various tonics were tried in vain; and change of air to Brighton (where a laryngoscopic examination was made by Dr. Ormerod) failed to restore the voice.

Finding that the larynx was quite healthy, with the exception of a relaxed state of the vocal cords, in the presence of Mr. Taylor and the child's parents, I applied galvanism to the vocal cords. The voice was then and there perfectly restored; and when the little girl left me, she was able to speak in her natural voice.

[Dr. Mackenzie relates numerous other cases in which the practice was very successful.]—*British Medical Journal*, Sept. 19, 1863, p. 317.

17.—TANNIN IN DISEASES OF THE RESPIRATORY ORGANS.

M. Woillez has described the results which he has obtained from the use of tannin in affections attended with excessive bronchial secretion. He has given the medicine in pills, each containing from 15 to 20 centigrammes (about $\frac{1}{4}$ to $\frac{3}{4}$ grains); of which two were taken twice daily at meal-time. The treatment has always been borne well. When continued for a long time, it seemed in two or three cases to produce some nausea before meals; but this ceased on merely suspending the medicine during three or four days. In no case was obstinate constipation produced. M. Woillez first used tannin in bronchitis, and subsequently in certain pulmonary congestions, in the bronchial dilatation attending the termination of some cases of pneumonia, and in phthisis.

In bronchitis, with subcrepitant râles occupying at least the bases of both lungs posteriorly, M. Woillez has given rhatany (which contains tannin), and also tannin itself, with the effect of diminishing the secretion. He relates the case of a patient, aged seventy, who had pulmonary emphysema with bronchitis, and of one aged sixty-seven, who had an attack of sub-acute bronchitis, in both of whom four-gramme doses of rhatany were given each day with distinct benefit.

On the other hand, tannin has little or no efficacy in chronic bronchitis, when the excessive secretion has become a kind of organic habit.

The preliminary congestion which attends severe fevers, especially of the typhoid class, has been rapidly removed under the use of tannin given in the doses indicated above. In one case especially, where the engorgement of the bronchi was so great as to produce extreme dyspnoea and cyanosis, these symptoms were rapidly removed by the tannin.

In the intrabronchial hypersecretion which accompanies uncomplicated bronchial dilatation, tannin produced no effect beyond slightly diminishing the abundance of the expectoration. M. Woillez also tried gallic acid in these cases, but with scarcely more marked effect.—*British Med. Journal*, April 4, 1863, p. 349.

18.—ON THE PATHOLOGY OF TUBERCLE.

By DR. J. HUGHES BENNETT, F. R. S. E., Professor of Clinical Medicine in the University of Edinburgh.

In endeavouring to determine the nature of tubercle, we must remember that it occurs in young persons in whom the nutritive functions are deficient in energy, whether from poverty and incapacity of obtaining food, from deficient stamina, or from causes of whatever kind which induce exhaustion. Hence its frequency among the ill-fed poor, in orphan and foundling institutions, among badly nursed children or weak and dyspeptic young persons, and after acute inflammations, whooping-cough, eruptive fevers, and other disorders that weaken the body. When, under such circumstances, exudation occurs in one or more textures, it does not undergo those changes we observe following inflammation in healthy persons. The vital changes are slow, and easily arrested. Instead of cells and perfect textures being produced, the efforts at vital transformations are abortive. The whole remains molecular and granular, or at most ill-formed nuclei are produced, which have received the name of tubercle corpuscles.

It is rare, however, that this weakness of the constitution acts uniformly at all times and in all textures. Hence it may frequently be observed that tubercle is more or less associated with pus and granule cells, or fibrous and other growths; with the exception of cancer, with which it is rarely combined.

I regard tubercle, therefore, as an exudation, which may be poured out into all vascular textures in the same manner and by the same mechanism as occurs in inflammation, only from deficiency of vital power it is incapable of undergoing the same transformations, and exhibits low and abortive attempts at organization, and more frequently, as a result, disintegration and ulceration. For the same reason we observe that whenever an undoubted inflammation becomes chronic with weakness, the symptoms and general phenomena become identical with those of tuberculosis. Hence there is little difference between a chronic pneumonia of the apex of a lung and a phthisis; the one, indeed, passing into the other.

When we endeavour to discover THE ORIGIN of the weakness producing this effect on the exudation, we must ascribe it to imperfect nutrition; indeed, it is impossible for any observant practitioner to avoid noticing throughout the whole course of the disease the derangement that occurs in the digestive system. All writers refer to the deficiency and irregularity of the appetite, and the functions of the whole alimentary canal will be found from first to last in an abnormal condition: the tongue is either furred and furrowed, or glazed and unusually red; the teeth are carious; the stomach capricious—sometimes rejecting food, at others retaining it an unusual time, with accumulation of flatus. There is a general indisposition to eat fat or fatty substances; and the appetite is feeble, absent, or, in rare cases, voracious. In the former case there is thirst and eructation of acid matters into the mouth; flatulence and tympanitis of the bowels are frequently complained of; the

alvine discharges and egesta are as irregular as the food and ingesta. Sometimes there is constipation, at others diarrhoea. The stools are only slightly tinged with bile and in children often consist of white glairy matter, like white of egg. It may also be invariably observed, that when by proper regulation of the diet, of exercise, or other circumstances which regulate the nutritive functions, the alimentary canal performs its duty, the health improves, and the tubercular formations diminish.

These, indeed, according to their excess or progress in particular organs, communicate to the disease more or less of a local character. In systematic works they have been described at length as separate diseases, although in truth, they are only manifestations of one disease.

After a time the continuance or violence of the local disease reacts upon the constitution, and a state called hectic fever is established, the which, inducing exhausting diaphoresis and emaciation, ultimately destroys the patient.

Natural progress of tuberculosis.—In tracing, therefore, the natural progress of tuberculosis, we observe it to commence in debility caused by impairment of nutrition. This leads to local congestion and exudations. The latter remain abortive, and consist of molecules, granules, and imperfect nuclei, which soften and cause ulceration, with more or less disorganization. The great contribution of M. Louis to the pathology of this subject was the establishment of a law, that whenever tubercle occurred in the body it also existed in the lungs, and whenever it occurred in the lungs it appeared first at the apex. This law, though now known to be subject to several exceptions, is still so generally correct as to be of the utmost service in diagnosis. Now, in the lungs, it was long supposed, and the opinion is still very general, that tubercle almost always proceeded onwards to a fatal termination; yet so far is this from being the fact that it can easily be shown that tubercle is arrested spontaneously in one-third of all the persons in whom it occurs. Nothing is more common in examining dead bodies than to meet with cretaceous and calcareous concretions at the apices of the lungs more or less associated with cicatrices. Of seventy-three bodies which I examined consecutively some years ago in the Royal Infirmary, I found these lesions in twenty-eight. Of these, puckering existed with induration alone in twelve, with cretaceous or calcareous concretions in sixteen. Since then I have examined many hundred lungs at the inspections in the Infirmary, and am satisfied that these proportions exist pretty constantly. At the Salpêtrière Hospital in Paris, Roger found them in fifty-one bodies out of a hundred; at the Bicêtre Hospital in the same city, Boudet found them in 116 out of 135 bodies. Both these institutions are establishments for persons above seventy years of age.

These lesions are so frequent, therefore, that it is important to determine whether they are really proofs of arrested tubercle. This seems to be established by the following facts:—

1. A form of indurated tubercle is frequently met with, gritty to the feel, which, on being dried, closely resembles cretaceous concretions.
2. These concretions are found exactly in the same situation as tubercular deposits are. Thus they are most common in the lungs, and at their apices.
3. When the lung is the seat of tubercular infiltration throughout, whilst recent tubercle occupies the inferior portion, and older tubercle and perhaps caverns the superior, the cretaceous and calcareous concretions will be found at the apex.
4. A comparison of the opposite lungs will frequently show, that whilst on one side there is firm encysted tubercle, partly transformed into cretaceous matter, on the other the transformation is perfect, and has occasionally even passed into a substance of stony hardness.
5. The puckering found without these concretions exactly resemble those in which they exist. Moreover, whilst puckering with grey induration may be found at the apex of one lung, a puckering surrounding a concretion may be found in the apex of the other.
6. The seat of cicatrices admit of the same exceptions as the seat of tubercles, and in about the same proportion. There can be no question, therefore, that these cicatrices and concretions for the most part indicate the arrestment, disintegration, and transformation of pre-existing tubercular exudations into the lungs.

The arrestment of tubercle in the lung is not confined, however, to its early stage. It may be stopped at any period, and numerous cases are now known where even vast tubercular caverns have healed and cicatrized. I here show you a series of preparations, which must convince the most sceptical of the truth of the statement.

Treatment.—It follows, therefore, that if we can succeed in supporting the nutritive functions, there is no reason why tubercle once formed should not be gradually absorbed, and a tendency to subsequent deposits completely checked. Formerly this was rarely accomplished, in consequence of the idea that phthisis pulmonalis ought to be treated by paying attention especially to the lungs and respiration. Hence cough mixtures, sedatives, a warm atmosphere, tar vapour, and other substances to influence the local lesion. Other symptoms had their special treatment, such as sulphuric acid to relieve sweating, acetate of lead and opium to check hæmoptysis, tonics to give strength, astringents to check diarrhœa, and so on; while so far from any vigorous effort being made to improve nutrition, the diet was kept low, consisting of farinaceous substances, or at most milk; and to avoid irritation, the patients were confined to bed or their rooms, which were kept at an equable temperature.

Our present knowledge has led to a complete revolution in our practice. Thus, moderate exercise to stimulate respiration, cold sponging, nutritious diet, and a bracing system have been found more beneficial; at the same time avoiding anodynes and cough mixtures, which, by diminishing the appetite, and inducing weakness, interfere with nutrition. Indeed it has been proved that the best method of lessening cough, expectoration, and sweating, are the means which produce increase of general strength; so that if we can carry out the general indication, the local symptoms may be safely left to themselves.

In doing this, we have now the advantage of possessing a remedy which in cases of tuberculosis is of the highest nutritive importance, as it gives to the system that fatty element in which it is so defective, and in a form that is more easily assimilated, and more capable of adding to the molecular element of the body than any other. I allude to COD-LIVER OIL.

And now you cannot fail to perceive how this molecular doctrine of organization and of growth not only explains the known facts in physiology and pathology, but constitutes the basis for a true therapeutics. Fatty particles form the molecular fluid of chyle; while out of chyle, blood, and through it all the tissues are formed. Impairment of digestion in scrofula and tuberculosis renders chylicification imperfect; the fatty constituents of the food are not separated from it and assimilated; the blood consequently abounds in the albuminous elements, and when exuded forms, as we have seen, tubercle. To induce health, it is necessary to restore the nutritive elements which are diminished, and this is done directly by adding a pure animal oil to the food. While an inflammatory exudation in previously healthy persons should be treated by supporting the vital powers generally, so as to permit its molecules going through the transformations necessary for their growth and elimination; in tuberculosis we add the constituent of food necessary for the formation of the molecules themselves. By so doing, we form good chyle and blood; we restore the balance of nutrition which has been disturbed; respiration is again active in the excretion of carbonic acid gas; the tissues once more attract from the blood the elements so necessary for their sustenance. The entire economy is renovated; so that while the histogenetic processes are revived, the histolytic changes in the tubercle itself also are stimulated, and the whole disappears. When, in 1841, I first announced the virtues of cod-liver oil as an analeptic or nutrient in this class of cases, so little was the substance known that linseed oil was furnished to the Royal Infirmary of this city instead of it, when I induced Dr. Spittal to try it in his wards. At present, I need scarcely say, whole fleets are engaged in transporting the oil from the extensive fisheries where it is manufactured for medicinal purposes; and its beneficial results are universally recognised.—*Lancet*, July 4, 1863, p. 4.

19.—ON ASTHMA.

By Dr. J. BUCKEN SANDERSON. (Being an abstract of a paper read before the Harveian Society of London).

After stating that the definition of asthma as a species of disease must be founded exclusively on the study of its development during life, with but little assistance from morbid anatomy, the author proceeded to describe the phenomena of an attack, dwelling particularly on the nocturnal onset of the affection, and the complete remission of all the symptoms during the intervals. The characteristic elements of asthmatic dyspnoea were stated to be, (1) excessive expansion of the chest; (2) resisted but forcible efforts to expire; (3) diminution of the exchange of air in the chest, and consequent venous condition of the blood. In the asthmatic state the chest is arched forwards in extreme inspiration, the diaphragm sinks below its normal level, so that its power is lost, while the almost fruitless efforts to renew the air in the chest are accomplished by elevation of the upper ribs. The expiratory muscles of the abdominal wall are in excessive action, but, in spite of their efforts, air is expelled from the chest with extreme difficulty and in small quantity. The condition of the blood which is thus produced gives rise to the sensation of want of breath, and impels the patient to make conscious and voluntary efforts to get rid of the used air, which is as it were locked up in his chest, so as to enable himself to obtain a fresh supply. In order to arrive at an explanation of this remarkable state, so different from every other form of dyspnoea, the circumstances must be considered under which it is developed. Asthma comes on during those hours of the night in which sleep is ordinarily most profound. At night the respiratory function is modified; the quantity of air exchanged is diminished. This diminution is partly, though not entirely, dependent on a change in the respiratory function of the vocal cords, which in nocturnal breathing approach each other more closely than in the waking state, that muscular action by which they are kept apart is relaxed. The more profound the slumber the greater the relaxation, and the narrower the chink of the glottis (*e. g.*, in snoring expiration). Assume for a moment that this natural relaxation becomes excessive. As the laryngeal resistance is normally greater to the egress than to the ingress of air, the chest falls more and more with each respiration, the inspiratory power of the diaphragm lessens, the exchange of air is diminished the blood becomes less arterial, and thus, without any agency beyond the intensification of that condition of respiration which exists in natural sleep, all the elements of asthma are developed. In short, it is possible to account for asthma as a result of disorder in the respiratory function of the glottis. But if it be remembered that muscular fibres on which this function depends are governed by the same nerve as the contractile fibres of the lung tissue (as is shown by the experiments of Donders and others), it will be readily admitted that if in asthma the respiratory fibres of the glottis are relaxed, those of the lung are in a similar state of relaxation, which would afford an additional explanation of the remarkable dilatation of the chest. This view accords perfectly with what is known as to the intimate relation of asthma and emphysema. Emphysema cannot be regarded as the cause of asthma; it would even be more correct to speak of it as its consequence. Emphysema results from resisted but powerful efforts on the part of the respiratory muscles to expel air from an expanded lung. This is precisely the state of things in asthma. But the relation between the disease and the lesion is rather that of community of cause than of consequence. Temporary over-expansion of the lung is a constituent of asthma; permanent expansion cannot exist without emphysema. Under the head of "Diagnosis," the author distinguished between asthma and spasmodic dyspnoea, in all forms of which the relation between the inspiratory and expiratory act is the reverse of that which holds in asthma,—*e. g.*, in the spasmodic dyspnoea of phthisis, acute bronchitis, and dwelt on the importance of determining the relative duration of the inspiratory and expiratory act, which may be best effected not by

listening to the chest, or observing its movements, but by auscultation of the larynx. As regards treatment, the author had found that no remedies were useful during the attack of asthma excepting stimulants, of which ipecacuanha in large doses, alcohol, and coffee were instanced as most important.—*Med. Times and Gazette*, May 16, 1863, p. 521.

20.—SOME ACCOUNT OF THE DATURA TATULA, AND ITS USE IN ASTHMA.

By Dr. JOHN F. M'VEAGH.

[Dr. M'Veagh's attention was first called to the *datura tatula* by a gentleman whom he was attending for asthma. The smoking of the drug had in this case a "most magical effect." The plant had been procured from Malta, where it grows abundantly in the governor's garden. The bruised seed and dried herb were mixed equally. The Right Hon. More O'Farrall, M. P., who has been governor of Malta says: "that *datura tatula* was a remedy much prized there in cases of asthma, successful in some cases and in others not." Probably the latter are not pure cases of asthma. Dr. M'Veagh obtained some of the plant from Messrs. Bewly and Evans, of Dublin, and has tried it in several cases.]

The first case was a clergyman in this city, liable for years to most severe attacks of asthma, in which the usual remedies were of little avail, until after many days of suffering. I induced him to give the *datura tatula* a trial; and the last time I saw him he informed me, with great pleasure, that smoking the plant, in the manner I directed him, had completely cured him of a threatening paroxysm. He had often smoked stramonium, but with no relief to his suffering. He takes also the extract of the *tatula* as a prophylactic, at bed-time. The next case was that of a gentleman in the county Roscommon, who has been a martyr for years to attacks of pure asthma, and who tried in vain to procure some remedy to ward off the paroxysms. He now smokes the *tatula* whenever the fit is impending, with perfect relief. Another case of chronic bronchitis has been thoroughly benefited by the extract in a pill, at night, and some of the tincture added to an ordinary expectorant mixture.

These cases, even few as they are, give me every reason to hope that in the *datura tatula* we have found a valuable remedy in cases of asthma, and it will be a useful adjunct to our *Materia Medica*.

No doubt, cases of uncomplicated asthma are rare; but even in complicated cases, as in that I have first mentioned, it proved a most valuable agent in affording relief. Its action upon the human system resembles stramonium, in some degree; but it is more antispasmodic, and less narcotic, than the former, and rarely causes headache, or leaves any unpleasant dryness of the fauces, or sense of constriction in the pharynx, as the stramonium so constantly does. Messrs. Bewley and Evans have prepared, according to my directions, the ingredients for smoking, also an extract and a tincture. The extract is made with coarsely pounded *tatula*, with cold water, exhausted by percolation, and the liquor evaporated to the usual consistence by steam heat. The dose is from half-a-grain to one and a-half grain. The tincture is made by digesting, for seven days, one part of powdered herb in eight parts of proof spirit. Dose—20 to 60 minims. The tincture, diluted with distilled water, remains transparent. The solution precipitates greyish yellow with tincture of galls and ferrocyanide of potassium, becomes of an inky colour with solution of perchloride of iron, and precipitates whitish with nitrate of silver. It does not precipitate with perchloride of mercury or acetate of lead. In a preliminary analysis of the plant, made by my friend, Dr. Aldridge, he finds that it contains an alkaloid, tannin, and, probably, some chloride. The botanical history of the plant will be found in Pereira's *Materia Medica*; but he makes no comment upon its utility.—*Dublin Quarterly Journal*, Aug., 1863, p. 127.

21.—ON THE ACTION OF EXPECTORANT REMEDIES.

By Dr. W. T. GAIRDNER, Professor of the Practice of Physic in Glasgow University.

[There is in works on therapeutics no attempt at a uniform or consistent theory of the action of expectorants, the subject being usually left very much an open question. The most common views are that expectorants act upon the secretions of the bronchial mucous membrane, by increasing them when scanty or viscid, by checking them when excessive, or by modifying them when morbid.]

In all mucous membranes forming an elongated and complicated tract, and still more in all those glands which end in caecal terminations, we have reason to believe that the superfluous mucous is removed outwards, along with the other secretions or excretions, by a regular peristalsis of the contractile walls of the mucous cavity. It is so in the intestines, liver, kidneys, and uterine organs. We know the mechanism by which the fetus is expelled from the long tortuous uterus of the lower animals, and we know that it is a similar mechanism which accomplishes the regular transit of the faecal matter, with the superfluous mucus, along the intestines, and which in disease dislodges a calculus from the liver or kidney. We know that a like apparatus exists in the bronchial tubes, but physiologists have probably not yet agreed in according to it a like function. The contractility of the bronchial circular fibres is no longer a matter of doubt, since the able experiments of Dr. Williams. But the use in the economy of this contractile endowment has been a fruitful topic of dispute; and all modern treatises on physiology give a list of contradictory speculations upon the subject. The idea of a peristaltic action capable of silently removing the superfluities of the pulmonary mucus, as well as inhaled smoke, dust, and all incidental obstructions was, I believe (under the name of a "deobstruent function of the bronchial tubes"), brought under the notice of the profession for the first time by me in 1851.

Since that period I have, in teaching, constantly described the bronchial muscles as the "scavenger muscles" of the respiratory tract; as performing for the lungs and bronchi the same service as the intestinal peristalsis in the case of the digestive tract, or that of the ureters and biliary ducts, as regards obstructions in their respective canals. And following out the same analogy, I have regarded and described expectorant remedies as being for the most part exciters of the bronchial peristalsis, in the same sense as cathartics are exciters of the intestinal peristalsis, or as ergot of rye is an excitor of the uterine action.

In aid of these analogies, I have repeatedly adverted to the following physiological and pathological circumstances, many of which are only explicable, to my mind, by the theory of a bronchial peristalsis:—

Suspended or irregular intestinal peristalsis (constipation) is very apt to be followed by colic spasms, with accumulation of air and faeces in the intestines; the relief of these symptoms, however brought about, being accompanied by the discharge of the retained and accumulated air and faeces, the result of the previous constipation, and of the colic spasm. In like manner, suspended or irregular bronchial peristalsis determines the paroxysm of asthma, with retention and accumulation of the normal pulmonary mucus; and as in the case of colic the relief of the painful spasm is often accompanied by movement of the bowels, so in asthma the resolution of the paroxysm is generally accompanied by the discharge of this accumulated mucus, the normal character of which, and the absence of all inflammatory complication, is shown in many cases by its pearly semi-transparency, and natural consistence.

Spasmodic colic is sure to be relieved as soon as the obstruction of the bowels gives way, whether under opiates or laxatives; the consequence, in both cases, being the voiding of the retained excreta. In like manner, spasmodic asthma is sure to be relieved as soon as the peristalsis is freely established; and the index to this is the discharge of the retained normal mucus, which comes away at the end of the paroxysm.

The remedial agents that have been ascertained by experience to tend to the removal of the mucus from the lungs, are chiefly of two classes:—1. Aromatic and volatile substances, such as camphor, ammonia, assafoetida, garlic, myrrh, copaiba, and several other balsamic extracts, turpentine, benzoin, &c. The action of these is probably local, and consequent on their direct contact with the pulmonary mucous membrane, either through the secretions, or through the expired air. 2. Substances which are expectorant in small doses, nauseant and emetic in larger doses, such as antimony, ipecacuanha, squill, senega, lobelia, tobacco, &c. It is these last that I believe to be peculiarly and specifically the exciters of bronchial peristalsis.

This peculiar and specific action of low doses of nauseant remedies, as exhibited on the bronchial muscles, is quite capable of being detached from the more violent emetic action of the larger doses, as is every day witnessed in the administration of squill, ipecacuanha, and even antimony. Nevertheless, it is a fact well-known to practitioners, that emetic doses of these substances have a quite marvellous power of relieving bronchial obstruction, as in hooping-cough, croup, &c., with a rapidity and completeness rarely witnessed when the low doses are alone prescribed. This singular power of emetics over the lungs is ascribed by almost all who attempt to explain it, to the mere mechanical operation of the act of vomiting on the external surface of the lungs. I submit that this is manifestly a very crude and imperfect explanation of so striking a fact.

But not only does vomiting, when produced by the administration of remedies, relieve the lungs by producing copious expectoration; it is equally true, that severe and irritative cough, such as that of hooping-cough, or of some stages of pulmonary phthisis, is apt to be followed by vomiting. This fact is familiar to practitioners, and can only be explained by some marked nervous communication between the stomach and the lungs.

The channel of this nervous communication is by no means obscure. The pneumo-gastric nerve, which has its terminus in the stomach, being distributed both to the mucous membrane, and to the muscular coat of that organ, has a like relation to the pulmonary mucous membrane, and the circular muscles of the bronchi. In both cases, it is at once the afferent and the efferent nerve. And thus the excito-motor phenomena of the lungs and stomach are brought into a very intimate anatomical and physiological relation. The physiological and pathological phenomena of the one organ are readily reflected upon the other; the medicines that act on the one organ are readily brought, by a variation in the dose, to act upon the other. The same medicines, the same physiological disturbances, are apt to affect also the movements of the heart, through the connection of the pneumogastric nerve with the cardiac plexus.

The object of the present paper being merely to call attention, as briefly as possible, to a subject which I believe to be of considerable importance, though hitherto to a great extent overlooked by therapeutical writers, I do not propose to accumulate details as regards the action of individual remedies of the expectorant class. But I may venture to point out as a testing inquiry in relation to this subject, the acknowledged power of antimony in acute pneumonia and bronchitis, and of squill or ipecacuanha in almost every morbid state of the mucous membrane of the air passages. It is in accordance with my experience, and I have no doubt with that of others that these remedies often act most favourably when their action is attended by little or no abrupt physiological change, either in the circulation or in the excretions. In particular, the evacuant action of these and other like remedies, supposed by Cullen to be of the very essence of their power as expectorants, is often rather to be avoided than sought in cases in which the relief of the lungs is the object to be attained; and experience, I think, teaches us that this object can often be accomplished by carefully regulated doses of squill, or even of the most powerfully nauseating expectorants, such as ipecacuanha or tartar emetic, without any appreciable general increase of the excretions, such as is presumed to take place by those who hold with Cullen that increase in quantity of the bronchial secretion is the

primary cause of the therapeutic action of expectorants. The well-known phenomena of *tolerance*, i. e., the suspension of the ordinary poisonous effects of a remedy during its therapeutic operation, is not confined to the case of the antimonial medicines, but may be observed to a considerable extent during the action of most of the nauseating or depressing expectorants. It is, however, during the favourable action of tartar-emetic in pneumonia that this phenomenon is most strikingly manifested, the therapeutic value of the remedy being developed entirely apart from any of its more commonly ascertained physiological effects. I have long been of opinion, indeed, that vomiting, purging, diaphoresis, and depression of the heart's action—in general terms, all the ordinary physiological effects of the drug—are in reality rather opposed than otherwise to the true therapeutic action of antimony in pneumonia. Without venturing, however, to enlarge at present on this wide and difficult subject, which I have treated incidentally from the clinical point of view elsewhere,* I am not without hope that the hypothesis submitted in this paper will be found to afford an explanation of some part of that mysterious so-called *antiphlogistic* power of heroic doses of antimony in pulmonary affections, which was first pointed out by Rasori, and of which it may be said that it has stood the test of experience far better than the theory in connection with which it was first published.

Note to the preceding paper.—I reproduce here the passage on the “Deobstruent function of the bronchial tubes,” from the papers on bronchitis above referred to; the exposition of the theory therein contained being from a somewhat different point of view from that of the present paper. The connection of collapse of the lung with obstructed bronchi, and the mechanism of the cure of the obstruction in such cases, leads to the following observations:—

“*Deobstruent Function of the Bronchial Tubes.*—Supposing these views correct, the mechanism by which the viscid mucus is expelled to such an extent as to permit the return of air into the occluded vesicles, demands further consideration. We have seen that the expiratory forces are, under such circumstances, thrown out of action; while those of inspiration, even if strong enough to displace the obstructing plug, can never permanently remove it. Under these circumstances it seems to be reasonable to ascribe to the bronchi themselves an active part in the expulsion of obstructive mucus, by means of the slow contraction of those circular fibres, the muscular character of which was demonstrated by Reisseisen, and whose physiological properties have been fully illustrated by the experiments of Dr. Williams and others. It is now well established that these fibres have no such vital endowments as would enable them to co-operate with the movements of respiration, influenced as these are by the will. “The contractility,” says Dr. Williams (of the bronchi), “resembles that of the intestines or of the arteries more than that of voluntary muscles or of the oesophagus, the contractions and relaxations being gradual and not sudden. They are, however, much less tardy than those of the arteries.” This kind of contractility is precisely that which empties the arteries of their blood after death, and which, in all probability, contributes to the passage of calculi along the ureters or gall-ducts. It is also more or less analogous to the peristaltic contraction of the intestines, or of the elongated tubular uterus of many of the lower animals, by which the solid or fluid contents of these viscera are gradually expelled towards their outlet. The experiments referred to appear to prove that the contractility of the air tubes is readily excited, not only by galvanism applied externally, but by mechanical and chemical stimuli in contact with their mucous membrane. It is easy, therefore, to understand, that the bronchi (or at least those which have not cartilaginous walls) may have a most important power of dislodging obstructions altogether independent of the forces of respiration. When these forces are in active operation indeed, the tonic or slow contraction will be in abeyance, or very slightly manifested, as the air-tubes will then be

dilated to their full extent at each inspiration and expiration. But, according as the admission of air to any part of the lung becomes less from obstruction, the detrusive action of the bronchial muscles will increase, being thus called into effective action precisely at the period when most required. Perhaps, also, the slighter contraction of these muscles may be in almost constant operation in the normal condition, to aid, by a kind of peristaltic movement, the outward passage of the physiological secretion. This secretion, comparatively small in quantity as it is, would almost necessarily tend to accumulate in the air-tubes (seeing that no efforts of coughing or forced expiration are made for its removal); and this would take place, particularly in the smaller bronchi, which we know to be especially subject to mechanical obstruction, and in which the ciliated epithelium, so abundant in the cartilaginous bronchi and trachea, gradually gives way to transition forms, not constantly furnished with cilia.

"It may not be easy to adduce direct proof of the theory here proposed, as to the function of the bronchial muscles in health and disease; but as *no* theory upon this subject has yet been found consistent with our present physiological knowledge, and as the above speculation appears in all essential points to correspond with what is already known of the action of these muscles, it may be worth while to give it consideration, were it merely to rescue us from the unphilosophical predicament of supposing the circular fibres of the bronchi to be endowed with contractility solely for the purpose of producing the asthmatic paroxysm. That these fibres are probably perfectly passive, as regards the respiratory act, is now generally admitted (contrary to the ancient opinion) by physiologists; and under these circumstances the theory of their deobstruent action, even in health, but more especially in the diseased states of the pulmonary texture above described, appears to supply a gap in the chain both of physiological and pathological phenomena.

"The ordinary form of the paroxysm of spasmodic asthma, of the humeral kind, is full of instruction, when considered by the light of the preceding views. Notwithstanding the extremely doubtful and difficult pathology of the disease, it seems impossible to avoid referring its most obvious symptoms to some kind of irregular action of the muscular apparatus of the air-tubes. The copious expectoration, again, with which the attack concludes, and by which it is immediately relieved, appears to indicate that undue accumulation of mucus has been taking place; while the absence in some instances, of all considerable catarrhal symptoms appears to demonstrate that this accumulation is directly connected with the spasmodic derangement which produces the paroxysm. The connection of these two phenomena it is by no means difficult to understand, according to the principles already laid down; in fact, if the removal outwards of the pulmonary mucus depends, in the normal state, upon the regular peristaltic contraction of the bronchial muscular fibres, it is obvious that accumulation must accompany the derangement of that action, just as constipation is the invariable concomitant of the analogous derangement of colic or ileus. In both cases the paroxysm ceases when the normal action is restored; and in general there is in both a copious discharge of the previously retained excretions.

"Asthmatic persons are often subject to a slight habitual wheezing in some part of the chest, and also to an occasional cough, with or without slight expectoration, but with no other symptom of catarrh. These symptoms have been described to me as occurring on exertion in the open air after prolonged rest; they are accompanied with slight dyspnoea, and this, together with the rest of the symptoms, ceases when the exertion is continued long enough to produce some degree of reaction. These phenomena are unquestionably the minor degree of the paroxysm; they are probably caused by the same irregular action of the bronchial muscles as causes the latter, but do not reach the climax, because the nervous centres are awake to the first approaches of disorder, and the excitement and quickened respiration consequent on exertion produce the cure. The aggravated asthmatic paroxysm always occurs during sleep, when the energy of the nervous sys-

tem is at the lowest, and the comparatively quiescent condition of the respiratory function favours the accumulation of mucus. It seems probable that the asthmatic paroxysm is attended with more or less of pulmonary collapse, the consequence of the accumulation in the bronchi; but I have not had an opportunity of direct observation on this point. It is certain, however, that this accumulation must seriously contribute to the production of the most distressing symptoms of the paroxysm. The spontaneous cure in the real paroxysm, as in the minor attack, or threatening of asthma, above referred to, usually takes place when the nervous centres have been thoroughly roused, and the whole system brought into a state of reaction by the exertion consequent on the dyspnoea.

"An interesting fact, in connection with asthma and other spasmodic respiratory diseases, is the frequent occurrence of vomiting during the paroxysms—a fact which points to the probable dependence of all these affections on some morbid condition in the communication of which the pneumogastric nerve and the medulla oblongata are the principal parts concerned. A phenomenon exactly the converse of that just alluded to, is the profuse and immediate expectoration in cases of obstructive bronchitis after the administration of an emetic. Now it is interesting to observe, in relation to both these facts, and their bearing on the subject we have been considering, that Volkmann has apparently succeeded in demonstrating the influence of stimuli applied to the trunk of the vagus nerve upon the muscular contraction of the bronchi—a point left open to doubt, both by the experiments of Williams and by the subsequent ones of Longet. The expeditious and complete relief afforded by an emetic in cases in which there has been extreme difficulty of expectoration, is one of the most striking phenomena connected with bronchitis; and one of which, I believe, no sufficient explanation has yet been afforded. It appears, however, to be completely in harmony with the theory I have advanced in the preceding pages.

"Another fact tending still further to illustrate this view, is found in the experiments of Reid, Longet, Schiff, and others, on the effects of section of the pneumogastric trunk, or of its visceral branches, on the lungs and bronchi. All experiments concur in proving that these operations are followed by a very large accumulation of frothy mucus in the bronchi. Changes in the lungs have also been observed, which seem to be of the nature of congestion and collapse, but are imperfectly described. M. Longet has also found emphysema of the lungs, the relations of which to pulmonary collapse will in these cases hereafter be considered; and there can be little doubt that we have all the phenomena of bronchial obstruction and collapse following the division of the nerve which, according to the views above proposed, is the chief regulator or excitor of the bronchial deobstruent function."*
—*Glasgow Medical Journal*, July, 1863, p. 137.

DISEASES OF THE ORGANS OF DIGESTION.

22.—MINERAL ACIDS IN DYSENTERY.

By Dr. JAMES HENDERSON, Medical Officer to the Chinese Mission Hospital, Shanghai.

[The following is from the Annual Report of the Hospital at Shanghai—a hospital which, from the great number of patients and the variety of the cases treated, must well tax the energies of its sole medical officer, and reflects the greatest credit on his professional skill. Other extracts from the same Report will be found in this volume of the *Retrospect*.]

I found cholera and dysentery prevailing to a great extent and proving very fatal. Soon after the middle of September, I became much struck with the rather unusual type which dysentery in most cases assumed. A few days after the disease commenced, typhoid symptoms usually appeared, great prostration supervened, frequent pulse with a dry brown tongue, and

* *Edinburgh Medical Journal*, Vol. xii., 1851, p. 442, et seq.

sometimes slight delirium. The whole nervous system seemed prostrated, plainly indicating stimulant treatment, and yet the ordinary stimulants produced no beneficial or decided effect. Wine, brandy, ammonia, camphor, mercury, and opium, seemed in many cases useless, either to modify the bowel complaint, or rouse the nervous system; indeed, mercury and ammonia seemed to do mischief. Quinine when retained, appeared to do good, but only in some cases would it remain on the stomach, the mortality was great, and decomposition of the body unusually rapid. On examining the blood of some patients, and comparing it with blood taken from a healthy individual, the former gave a much more decided alkaline reaction than the latter. Even the urine of patients with typhoid symptoms gave in many cases an alkaline reaction, thus indicating a condition of super-alkalinity in the body, or at least, a deficiency of acid. This led me to adopt an acid mode of treatment, which proved decidedly beneficial and successful; and as hydrochloric acid enters so largely into the composition of the tissues of the body, I preferred it to the other acids. It is best to give it with some bitter tonic and a little laudanum, if necessary, every three or four hours, and after the second or third dose, a change for the better is in most cases visible. After adopting this method of treatment at the end of September, very few died, if the treatment was commenced, before complete prostration of the nervous system ensued. The patients themselves seemed to feel the good effects of the acid, one man who was admitted in a very weak and prostrate state, with frequent and painful stools, used to call out for more medicine, declaring that it put new life into his body. In about two-thirds of all the cases of dysentery which presented themselves, between the beginning of September and the middle of December, symptoms more or less of a typhoid character were present, and, in a large number, they were very marked and decided.

Some cases of pure typhoid fever occurred during the months of November and December, and in the treatment of this disease, the beneficial effects of hydrochloric acid were strikingly manifest. In the treatment of typhoid fever they seem to me as decidedly beneficial and *specific*, as the effects of quinine in ague. Through the "London Medical Times and Gazette," I have recommended a *full* trial of this remedy, in typhoid fever, and in dysentery, with typhoid symptoms, to be made in the London hospitals. The good effects of hydrochloric acid in typhoid fever, are easily explained. Ammonia in large quantities is constantly formed and emitted from the body of a patient with typhoid, and indeed in all cases of low fever. In all cases and conditions, where destructive metamorphosis of the tissues of the body proceeds more rapidly than the nutritive metamorphosis, an excess of ammonia is given off from the body, and the blood is found to be more alkaline than when the functions of the body are in a normal state. The breath even, when analysed after fasting or great exertion, contains a larger proportion of ammonia than after rest. Moreover, it has been proved by injecting ammonia into the veins of animals, that symptoms are produced exactly similar to those in patients suffering from typhoid fever. Thus clearly indicating that in typhoid fever there is an excess of alkali in the system, in other words, there is not acid present in sufficient quantity to neutralize the alkali, and surely in such a condition a treatment by acids is clearly indicated. The blood of patients suffering from scurvy and purpura, is almost exactly the same as the blood of a patient in typhoid fever. These diseases are universally treated by acids, and why should not also low forms of fever?

In most cases, after the second or third dose, the tongue begins to clean, there is less thirst, the diarrhoea abates and there is less depression and languor. When there was delirium or low muttering, I gave the acid and bitter infusion in half a wine glass-full of port wine, instead of cold water, which improved all the symptoms even in the most acute cases. In many cases of dysentery, ipecacuan wine given with the acid was useful.—*Report of Shanghai Hospital for 1862, p. 5.*

23.—ON THE TREATMENT OF ACUTE HEPATITIS IN ITS SUPPURATIVE STAGE.

By Dr. J. C. CAMERON, Deputy Inspector-General.

[The question as to the propriety or not of opening an hepatic abscess is one by no means decided. In a small Treatise on Diseases of India, published last year by Mr. W. J. Moore, of Bombay, we find it stated that "All operative interference is now universally condemned. The integument should be allowed to become reddened, and show positive evidence of pointing before matter may be artificially evacuated." Dr. Budd condemns the practice, except when it is evident from circumscribed oedema, or a slight blush on the skin, that union has taken place between the integument and the abscess. Mr. Moore further states that it is impossible to conceive the existence of any case which would justify thrusting an exploring needle into the liver. Dr. Budd gives the above opinion on this point because he thinks the entrance of air would give rise to dangerous suppuration, forgetting that the entrance of air is not prevented by a spontaneous opening. Frerichs, in his work on Diseases of the Liver, translated by the New Sydenham Society, says, "When the abscess takes a direction outwards, we ought not to delay in making an artificial opening. In most cases, when fluctuation can be detected, the abscess has already attained a considerable size; and the longer its evacuation is delayed the greater are the dangers of its bursting into the abdominal cavity, of an extensive destruction of the liver, and of the formation of a dense, rigid, not easily cicatrised cyst. Indeed, we must not always wait for the supervention of fluctuation, or for the oedematous infiltration of the abdominal walls; because these signs, especially in the intercostal spaces, are sometimes late in making their appearance; in such cases the prominences of the false ribs and the obliteration of the intercostal spaces suffice to justify the operation." We have quoted enough of this article to show the decided opinion of Frerichs on the subject. Dr. Cameron has not read Frerichs' work, as he considers the opening of hepatic abscesses "opposed to the present ruling of recognised authorities on such matters." We should, ourselves, before pushing a trocar into the liver, or making an incision of limited extent, insert a circle of needles pretty close to one another, in order to excite adhesion of the peritoneal surfaces, if such did not previously exist, and afterwards puncture within the area of the circle. Dr. Cameron observes:]

Hepatic abscesses may be considered practically under two heads—suspicion, and certainly, faith and sight. In both alike we are told not to interfere, but to stand by as spectators of a duel between hectic fever and an enfeebled constitution, contenting ourselves with supporting the latter in its struggles, and using local applications to favour pointing. It is admitted that few survive such a combat, and that while it is going on, a daily-increasing collection of pus is hollowing out the liver, or endeavouring to work its way into the lungs or bowels, the patient being liable to destruction at any moment from rupture into the pericardium, peritoneum, or pleura. Yet we are told that it is less dangerous to run all these risks for weeks than to venture on puncturing a plainly discernible abscess, or hazarding a search for one deep-seated. I say, on the contrary, that when we have just grounds for believing that abscess of the liver exists, we ought not to lose a day in evacuating it by puncture, and that we are both justified and safe in endeavouring to hit upon it with a trocar when deep-seated, avoiding the gall-bladder and large veins. Dr. Murray, our Inspector-General in Bengal, who was an able practical physician, advocated this practice in the Madras Medical Journal twenty-five years ago, and stated that the Indian *hakims* had immemorially resorted to puncture of both liver and spleen for the dispersion of enlargement with induration. I have never tried it on the spleen, but I have repeatedly plunged a trocar deep into an enlarged liver without finding an abscess, and never had the slightest ill result beyond a little local pain, yielding readily to opium, or a few leeches round the puncture. I have also found such puncture followed by gradual absorption and disap-

pearance of the enlargement. In men who have died with abscesses that I failed to reach, I have found it extremely difficult to detect the marks of such unsuccessful explorations, and this, too, when there have not been any adhesions; so that I believe the danger said to attend on such an operation has been diagnosed rather from analogy than from any actual consequent mortality.

But, granting the dangers to exist, the question arises whether they are greater than those resulting from non-interference; and I have no hesitation in saying that they are infinitely less. How many men die without any attempt at pointing, though their liver may have been converted into a mere purulent sac! and who shall say that their lives might not have been saved by operation when perhaps there was not above a few ounces of pus secreted? I have seen the ribs denuded and carious in such cases, while the surgeon had waited for weeks to see the abscess point; the man dying, worn out by fever and diarrhoea. Every officer of long hospital experience in the East must have his memory stored with such melancholy victims. I would certainly never allow a patient to die of hepatic abscess without making every attempt to evacuate it, and that at the earliest possible moment, when as yet the constitution retains some vigour. A trocar with canula of the medium size I consider preferable to either scalpel or lancet for opening the abscess. The latter may be used, where the skin is thick, to divide integument, and thus allow the trocar to enter with a gentle force. Should it have passed into an abscess, the pus will flow readily through the canula with a little help from a probe and the aid of gravitation. When the abscess seems pretty well emptied, the canula should be carefully fastened in by twine passed through perforations in its rim, and also by broad sticking-plaster over it, leaving a small central opening. It may be found painful, difficult, or even impossible, to replace a canula that has slipped out, particularly in deep-seated abscess. A large warm poultice should be laid over the side, and the man placed on it, with a circular pad or pillow so placed as to obviate pressure on the canula. A strong dose of morphia should be given immediately after the operation, which is generally attended with great relief, and followed by refreshing sleep. The poultices should be changed twice or oftener in the twenty-four hours; and at his morning visit the surgeon should see to the opening, and aid the discharge by very gentle general pressure over the side, avoiding all poking or thrusting with the ends of the fingers. About the third day the canula may be withdrawn and replaced by a tent of lint dipped in oil, which should be changed daily. A liberal diet, with porter, wine, and if possible, food that the patient will relish, should be supplied. If things are to go well, the discharge will gradually lessen and the patient gain strength; the probe will show that the depth of the cavity is decreasing, while the general enlargement of the side has quite subsided and disappeared. By-and-by a clear mucous gleety-looking fluid replaces the pus, and finally the wound closes. Should the case be likely to end badly, either from the existence of a plurality of abscesses, the great size of the one opened, or an absence of all constitutional power to repair damages, it is denoted by the continuance of hectic and wasting discharge; but, under any circumstances, the operation seems to afford relief to symptoms, and to give the patient an extension of life, and ease in dying. This was particularly shown in some of Dr. Murray's cases, especially in one officer, who had a large abscess burst through his right lung before Dr. Murray visited his station. Being greatly distressed by a feeling of suffocation, and harassed by incessant cough, with constant purulent expectoration, that gentleman punctured the liver, and, by giving vent to the abscess externally, placed the patient in comparative comfort, though too late to do more than smooth his path to death.

When the operation has been decided upon, and there is no particular prominence in any region of the liver, but merely a general fulness of the side (and this perhaps only distinguishable by going to the foot of the bed, and comparing from thence the right and left outlines of the trunk), a very useful examination may guide us as to the likely spot. We should trace all

the intercostal spaces, and if any superficial œdema be found, the abscess may be expected under it, and close at hand. The slightest intercostal fullness should be noted, and the patient desired to breathe deeply, while the finger is fixed with gentle pressure flat along the spot. If the breath be caught precisely under it on deep inspiration, that is the spot for puncture; and, in the absence of local fullness, the place where the inspiration is most impeded must be our guide, with due attention to anatomical relations. It is remarkable how often one can determine the exact seat of greatest pain in breathing, &c., within the size of half-a-crown or less. Failing any such guide, the surgeon must rely on the general aspect of the side, and that inexplicable impression which experience alone can supply, and which so often proves correct, though one is quite unable to define its exact grounds.—*Lancet*, June 6th, 1863, p. 631.

24.—ON GALL STONES.

By Dr. J. L. W. THUDICHUM.

A knotty point which Dr. Thudichum has helped to solve, is the nature of the morbid process to which gall-stones owe their origin. In this process two things have to be considered. (1.) The decomposition of the bile, and consequent precipitation from it of the different materials which form the nuclei of gall-stones. (2.) The mode in which such precipitates come to form concretions. The cause of the decomposition—that is to say, the pathological condition of the liver in which it originates—is still a mystery. Dr. Thudichum suspects it to be some putrid ferment generated in, and absorbed from, the intestinal canal. But, be the cause what it may, the fact that the first step in the formation of a gall-stone is decomposition of the bile and precipitation of certain of its ingredients is now undisputed; and by the light of the chemical changes which he has ascertained to take place in putrefying bile outside the body, the author attempts to explain the exact nature and successive steps of this decomposition. His explanation is too long for quotation. We would merely remark that it appears to us very reasonable, being (as he fairly claims it to be) “derived from all the data on record, with only so much of hypothesis as seemed justified by the amount of incontrovertible knowledge.” As to the second point, viz., how concretion of the precipitates is effected, he shows the untenability of the old hypothesis, which ascribed it to inspissation of mucus or bile, and maintains that “the binding material of the nucleus of gall-stones is cholic acid, or chloïdic acid, or both.”

The author's description of the symptoms of gall-stone colic is of great value, because based exclusively upon cases in which the gall-stones were found after death. The general opinion, that these concretions produce symptoms only when lodged in the *common* duct, has (he observes) of late “become very doubtful, as it has been found that calculi in the *hepatic* duct or ducts produce symptoms of a peculiar kind, differing from the symptoms of gall-stones in the gall-bladder and common duct by the absence of pain, and having the greatest resemblance to chronic intermittent fever. In one case treated by Frerichs for a long time by means of quinine and other febrifuge remedies, the rigors and other symptoms simulating fever were caused solely by calculi in the hepatic duct; their presence had not been suspected during the life of the patient.”

Retardation of the pulse he holds to be a pathognomonic symptom in this disease. In forty-five cases observed by Wolff, “the symptom of diminished frequency was so constantly found during frequent observations, that in doubtful cases (*i. e.*, in absence of jaundice) it was mainly relied upon for the diagnosis.”

Jaundice he believes to be by no means of such frequent occurrence during the passage of gall-stones as is commonly supposed. It was present in only

twenty out of Wolff's forty-five cases. "The number of cases in which no jaundice appears is probably still larger in comparison to those in which it appears, as cases of the former kind easily escape diagnosis, while those accompanied by jaundice are never lost sight of."

Dr. Thudichum's remarks on the treatment of gall-stone disease, though advancing nothing positively new, contain some useful practical hints. He illustrates the necessity of leaving remedies, and directions for using them, with persons who have once had serious gall-stone colic, so that, in the event of any sudden return, they may be employed without loss of time. The only known internal remedies effectual in mitigating the pain during the paroxysms are anodynes, such as opium, belladonna, and ether; but much caution, he shows, is needed in their administration, because when they have been taken in large doses they are apt, after cessation of the pain, to produce dangerous symptoms of narcotism. Both reason and experience, in his opinion, contra-indicate any abstraction of blood, either local or general, during the passage of the concretions. Their solution in the living body he believes to be impossible; their expulsion during the use of certain mineral waters (Carlsbad, Marienbad, Ems, Vichy, and others) he admits, but confesses himself unable to explain. He summarily condemns the practice of giving mercury in cases of jaundice from calculous obstruction, "or in any other cases of jaundice from whatever cause, syphilis excepted. Calomel is not a cholagogue, but diminishes the secretion of bile. . . ." We cannot go the same length as Dr. Thudichum in condemnation of this remedy. To give it in jaundice from obstruction is manifestly senseless and mischievous. But, be the action of mercury what it may, in many cases of functional jaundice (especially in children) we find a moderate dose of calomel set the patient to rights so promptly, efficiently, and safely, that even Dr. Thudichum's strong disapproval will not persuade us to discard its use.—*From Dr. Thudichum's recent work on "Gall-Stones; their Chemistry, Pathology, and Treatment."*—*Med. Times and Gazette*, Aug. 8, 1863, p. 151.

DISEASES OF THE URINARY ORGANS.

25.—WHAT IS DIABETES ?

By DR. ROBERT VENABLE, M.A., Physician to the Royal Kent Infirmary.

Until the time of Prout, at least two species of diabetes were admitted by nosologists,—the mellitic and insipid; and this division is recognised by some even in the present day. Under this division, every form and variety of diuresis was referred to the *genus* Diabetes, the only distinction being the saccharine or the insipid state of the urine. This view naturally led to great confusion, for diuresis of every kind—no matter what the cause, or however transient the diuresis itself—was pronounced diabetes. We know, however, that diuresis often proves a mere temporary affection—in hysteria, for example—and soon disappears.

There is a form of diuresis characterised by the large amount of urea in the urine. So abundant at times is this principle, that the urine gelatinises as it were, into a solid crystalline mass on the addition of strong nitric acid. In many such the specific gravity, upon which much reliance has been placed as indicative of the presence of sugar, is very high, often rising to 1.030 or 1.035. I have seen it as high as 1.033, and in one instance 1.042. These are extreme cases, and probably of very rare occurrence.

In excess of urea (azoturia) the urine voided at each micturition cannot always be considered excessive. Indeed it is often below the natural quantity; but the constant desire to pass water, and the frequent micturitions in consequence, render the whole amount of urine voided in a given time much above the normal standard.

We meet with other cases of diuresis in which the urea is far below the

normal amount (anazoturia). Such are sometimes attended with the voiding of very large quantities of urine, and, as may be readily imagined, of very low specific gravity, 1.010, or even lower. There is a marked contrast between the two urines just described. The first abounds absolutely in urinary principles, the latter is deficient in these.

Reagents show that the former is—at least comparatively—rich in the urinary pigments; whereas, in the latter, these are greatly diminished, and in some instances afford scarcely a trace. Uric acid, too, is often spontaneously deposited in cases of diuresis with excess of urea, indicating a true acidity of the urine, and a phlogistic diathesis. In anazoturia, on the contrary, the urine is often alkaliescent, loaded with carbonate of ammonia, and prone to spontaneous fermentation, whence in all probability the carbonate of ammonia. Prout mentions instances in which enormous quantities of urine have been voided—in such instances, sixteen, even twenty pints in the twenty-four hours. Excessive quantities of urine have been passed by young children in similar circumstances.

Many of such cases have been looked upon as diabetes, and detailed as such, and Prout makes a similar remark. Hence the necessity of establishing a distinction between true diabetes and these spurious forms. I recommended that the term be restricted to those affections in which the urine is saccharine. Hence, I define diabetes to be a disease in which a saccharine state of the urine is the characteristic symptom.

This was a step in the right direction. There is good reason for believing that another error frequently prevails. Though the term diabetes be restricted to those urines only of which sugar is a constituent, as a counterpoise, it is sometimes, if not often, held that all saccharine urines are necessarily diabetic,—a source of nearly as much error (and far more serious in its effects) as that which Prout (to be hoped not unprofitably) struggled to correct. Prout's dictum, if it may be so named, is not unfrequently misunderstood. He did not intend that all saccharine urine should be regarded as unquestionably diabetic, nor that saccharine urine and diabetes were reciprocal terms, and therefore universally predicable of each other. I had Dr. Prout's co-operation in several cases of saccharine urine, but neither of us for a moment entertained the notion of any alliance with diabetes.

Diabetes may be defined a disease in which a saccharine state of the urine is an *essential characteristic*; without this saccharine state it is quite right to question, indeed to deny the claim to the diabetic character, and I believe this is now admitted by the most experienced in this affection. What, then, the inference? That many of the instances of successful treatment are to be explained upon these principles that they were *not* cases of diabetes, nor even allied in any way to this affection, except in the one circumstance of saccharine urine.

Of simple saccharine urine I see numerous instances; many of these merely transient, which pass off without any treatment whatever; others more permanent and more obstinate. Some of these require treatment, not only medical, but by strict, sometimes severe regimen. Some recover, and get rid of the sugar altogether after protracted intervals; with others the saccharine diathesis—if it may be so named—is more obstinate, and may continue without the least inconvenience, or even the patient's consciousness of his position. I know the case of a gentleman, now far advanced in years, whose urine, to my own personal knowledge, has been saccharine for the last eight or ten years. He suffers no inconvenience whatever; the urine varies in specific gravity, and the quantity of sugar increases or diminishes apparently guided and regulated by changes in the habits of the patient for the time being.

Dr. Pavy tells us "that a diabetic patient may, by a purely animal diet, keep down and limit the amount of urinary sugar voided to 1,000 grains per day, and thus the patient not in any way know of the existence of his complaint, otherwise than by the necessity of restricting himself to the regimen *essential* to this object."

Prout himself tells us that a saccharine condition of the urine is not neces-

sarily diabetic. Thus he says:—"Indeed a saccharine condition of the urine exists in dyspeptic and gouty individuals much oftener than is supposed, and hundreds pass many years of their lives with this symptom more or less constantly present, who are quite unaware of it till the quantity becomes increased."

What, then, are we to infer from these facts? That many of the cases treated successfully as diabetes were really explicable upon these principles; that they were cases of ordinary uresis; some of the saccharine forms, others the insipid, but neither in any way allied to true diabetes. What, then, is diabetes, and how is the real to be distinguished from the spurious disease?

The first question to be answered is whether the urine be saccharine or not, because, if there be no sugar there can be no diabetes, and there is an end of the matter. Then how are we to determine the presence of sugar? A variety of means affords us a choice, and we can readily satisfy ourselves upon this point. It is, however, no part of the object of this paper to detail at any length the different plans; still I think one or two hints may save the analyst a great waste of time, and no little amount of unnecessary trouble.

First, the taste, if it gives the sensation of sweetness, settles the question at once: but it must be recollected that urine may hold a considerable quantity of sugar in solution, and yet not taste sweet; but, on the contrary, saline and bitter. This I have found often the case, and when the taste gave no sensible evidence whatever of sugar, chemical tests gave very satisfactory indications of this principle in tolerably large quantity. What, then, is to be done? When the specific gravity or any other condition of the urine renders the presence of sugar questionable or doubtful. The more expeditious, or at least the readiest plan, which I always adopt, and which I recommend to the busy practitioner, whose object must always be to economise time, is the fermentation test. I introduce into a small phial, of from half-an-ounce to an ounce capacity, sufficient of the urine to nearly, but not completely, fill it. Next introduce a small fragment of the German yeast, shake so as to diffuse the ferment, and put into a tumbler of water heated to about 90° or 100° Fahr. It will very soon acquire the temperature of 70° or 75°. The bottle may now be corked and transferred to the waistcoat or trousers pocket. Fermentation, if sugar be present, will soon begin, in times varying from one to two, three, or four hours. If this does not happen, the phial with its contents may be kept at the fermenting temperature for from twelve to twenty-four hours; it is unnecessary to point out the means of doing this, as it may be accomplished in various ways. The fermentation takes place with more or less rapidity, and more or less activity—violence—in a ratio no doubt proportioned *cæt. par.* to the quantity of sugar held in solution. If after a reasonable time, there be no evidence of fermentation, I look upon the question of diabetes as completely settled. Sugar cannot exist in solution, exposed to the influence of a ferment at the temperature mentioned, without undergoing the vinous fermentation, with the evolution of carbonic acid gas and the generation of alcohol.

We shall now suppose the alternative fermentation to have taken place, is sugar necessarily present? By no means. Urine may ferment, more especially under the influence of a fermentative, even though there be not a particle of sugar present. Therefore the object of the above is only to decide whether additional inquiry be necessary.

Several methods have been recommended, and Trommer's seems to be the best, and perhaps as manageable as any. If fermentation and the copper test confirm each other, the cautious practitioner will avail himself of several others, if not at his first examination, at some of his subsequent ones. This general confirmation will not leave room for a possibility of doubt. It not unfrequently happens in complicated conditions of the urine that the colouring pigments and the cloudiness not removeable even by filtration will so embarrass and so vitiate the results, that doubt, even serious error, may ensue. The removing of all these causes of obstruction may therefore in certain cases be found advisable, sometimes absolutely necessary. There are means,

no way difficult, of effecting this object. In my lectures on the Chemical History, &c., of Urinary Diseases (Medical Gazette, 38, 39), I suggested acetate of lead for clarifying, &c., the urine, and precipitating by hydro-sulphuric acid gas. This seemed to many a troublesome and otherwise inconvenient process, and I then proposed to remove all embarrassing agents by acetate of lead in slight excess, and removing this last by phosphate of soda in the equivalent proportions, or rather in slight excess. By these means a perfectly clear, transparent, and, in most instances, colourless urine will be obtained, and the tests for sugar will act with unfettered energy and give satisfactory results.

The above plan removes albumen, and all other urinary constituents that can offer any obstacles, and will be found far more expeditious and much more effective than evaporation to dryness, boiling the residue in distilled water, filtering, &c., not unfrequently recommended.

So far, we have only determined the presence of sugar; but is the disease diabetes? It is clear the answer must be determined by collateral circumstances. Sugar, as already observed, is but one,—though an absolutely essential one,—of the elements in the diagnosis.

The collaterals laid down by Prout are perfect transparency; pale straw colour, with a greenish tint, and a faint, peculiar smell. The odour that of newly mown hay; sometimes of sour milk. Taste in a greater or less degree sweet; specific gravity from 1.020 to 1.050, but there is no precise limit to the possible height of the gravity, the elevation above the normal of course depending upon the amount of sugar in solution. It may be assumed, however, that really diabetic urine should, *cat. par.*, always have a standard not under 1.030. This may appear a singular proposal, when I refer to a case in which the gravity of diabetic urine was under 1.009. But in this instance the patient was at death's door—more appropriately, death was at the patient's door. As the fatal issue approaches, I have often observed that the gravity falls very low; the daily urine diminishes in quantity; urea decreases; uric acid nearly disappears; and even the quantity of sugar becomes greatly reduced. These may be considered as portending the fatal issue close at hand.

To recapitulate concisely the symptoms on the first appearance, or in its incipient stage, of diabetes:—*saccharine diuresis*, an absolute essential; inordinate appetite, ultimately becoming voracious; urgent thirst, at last insatiable; arid, rough, unperspirable state of the skin; emaciation; lassitude, listlessness, and disinclination to any kind whatever of exercise or exertion, bodily or mental. These symptoms from being at first slight, as the disease advances become aggravated, ultimately terminating in organic disease of some of the viscera—not unfrequently terminating in disorganization. The tongue is coated with a whitish mucus, from which it cannot be freed; a frothy, glutinous saliva exudes from the angles of the mouth, encrusting them, and giving a peculiar thickness to the voice, so that the patient articulates as if he had marbles, or some other foreign substance in the mouth. There is another, a local symptom, which, though not an invariable attendant, yet is present sufficiently often to deserve notice,—I mean an affection of the penis in men; of the orifice of the urethra in women. It often appears in the former as phymosis, and, not unfrequently, as a sort of erythematous blush, attended with a thin, curdy secretion, of a viscid character, not from the urethra, but from the external coating of the glans itself and the internal lining of the prepuce. This was the condition of an officer, a captain in my own old corps, the Royal Artillery. The moment I saw the condition, I believed it to be a commencing gonorrhœa, for which I knew this condition has been mistaken; but I was saved from committing any blunder by his stating he was suffering from diabetes. Anaphrodisia is by no means an uncommon concomitant of diabetes.

But the object is not a detailed or complete history of diabetes, but to show the necessity of limiting the application of the term, and confining it to its legitimate boundary.

My own inference is, and from no very narrow experience, that diabetes is

an incurable disease, at least so far as our present knowledge and means extend.—*Med. Times and Gazette*, May 2, 1863, p. 446.

26.—NEW TEST FOR DIABETIC SUGAR.

MM. TROUSSEAU and DUMONTPALIER have been recently making some experiments with *tincture of iodine* as a test. This tincture when added to urine which is acid, imparts a deep colour to the fluid, and if the urine in jaundice be treated by some drops of the tincture, the green matter, termed *biliverdine*, is rendered very manifest. During the trials which produced the above results, some diabetic urine was treated with some drops of the tincture. The urine, almost colourless at first, after the addition acquired the colour of barley-sugar; but this colour gradually disappeared, the urine again becoming completely colourless at the end of a few seconds. The experiment was repeated again and again with the urine of various diabetic patients, and always with the same results—the power of this urine in producing the discolouration of the tincture being in proportion to its density. Tried with urine from various sources, the conclusion has been arrived at that diabetic urine alone possesses the power of rapidly rendering the tincture colourless. The researches are still being carried on with the hope of being able to measure by means of the tincture the exact amount of glycoose contained in any given urine.—*Union Médicale—London Med. Review*, May, 1863, p. 610.

27.—ON THE USE OF CITRATE OF AMMONIA IN CASES OF IRRITABLE BLADDER, WITH URINE OF LOW SPECIFIC GRAVITY.

By R. H. MEADE, Esq., Surgeon to the Bradford Infirmary.

Some of the most troublesome cases of irritation of the bladder that come under the notice of the surgeon are those dependent upon disease of the kidney; the vesical pain and irritability arising from the altered state of the urinary secretion. I do not here allude to those forms of functional disorder, where different kinds of sand or gravel are secreted; but more especially to those cases in which the urine is of low specific gravity and deficient in urea; the accustomed stimulus of which seems to be missed by the bladder. Among these many cases of Bright's disease may be classed, in which the first symptoms that excite the patient's attention, and are present for weeks or months before other indications of disease are noticed, are pain in micturition, with a too frequent desire to empty the bladder.

All forms of irritable bladder are difficult to relieve, unless the cause can be removed, and, as this is not always practicable, any remedies that have been found useful are worth recording. The root of *Triticum repens* has been recommended by Mr. Henry Thompson in some cases, but for several years I have found more relief, in the forms of disease to which I have briefly alluded, from the citrate of ammonia than from any other medicine. My attention was first directed to it by the treatise on stomach and renal diseases of the late Dr. Prout, in which he recommended it as a good diaphoretic in some forms or stages of Bright's disease. Finding that it relieved the irritability of the bladder, which existed in some of the cases of albuminous urine in which I prescribed it, I tried it especially in cases where this symptom was very prominent, and frequently found it successful in its removal or alleviation. I have sometimes combined it with infusion of buchu or tincture of henbane, but though these or other remedies may sometimes increase its efficacy, I often find as much benefit from its use when it is given by itself.

The form in which I prescribe it is one drachm of sesqui-carbonate of am-

monia with one drachm and fifteen grains of citric acid, mixed with six ounces of water. An ounce of this mixture to be taken three or four times in the day.

With regard to the *modus operandi* of the remedy, I beg to quote the following extract from Dr. Prout's work (it occurs in the form of a note at the bottom of page 95 of the fifth edition):—"I have reason to believe (he says) that when large quantities of the citrate (and perhaps other salts) of ammonia are taken by dyspeptic patients, it is sometimes converted into urea. The greatest excess of urea I ever saw occurred in the urine of a dyspeptic hypochondriac, who was in the habit of taking large quantities of the citrate of ammonia. On leaving off the ammoniacal salt, the quantity of urea immediately became and continued normal."

Should the remark made in this extract, which has only lately fallen under my notice, be correct, it is only in cases where there is a deficiency of urea that the citrate of ammonia will be beneficial; and as far as my experience goes this is the fact. I always prescribe it in cases of irritable bladder, where the urine is of low specific gravity. Too many of these cases occur in connexion with serious organic disease of the kidneys, where palliation of the symptoms is all that can be hoped for; but I have seen remarkable improvement of the health take place under a steady use of this remedy for some time, where chronic desquamative nephritis, or even suppurative inflammation of the pelvis of the kidney, had been going on for many months.

We occasionally meet with a case of irritable bladder (of course I exclude here cases of hysteria) in which the general health appears pretty good, and where the only apparent disorder of the urine is an increase in its quantity, with a constant lowness of its specific gravity, from a deficiency of urea. In these cases the urine may be kept a considerable time without becoming at all foetid, and is destitute of the usual urinous smell when first passed. I think with Dr. Prout that this affection mostly terminates in organic disease of the kidney, or rather in the first stage of it. One well-marked case of this description which came under my care after various remedies (for the relief of the vesical irritation) had been tried by several medical men, yielded almost immediately to the citrate of ammonia.

I may remark, in conclusion, that it is curious to find that while so able a physician as Dr. Prout should have noticed so remarkable a fact, in his chapter on disorders of the urine accompanied with excess of urea, as the excessive formation of urea in cases where large quantities of citrate of ammonia had been taken, he should not have turned it to a practical account, and recommended the same thing as a remedy in other cases where there is a deficiency of urea.—*Medical Times and Gazette*, July 11, 1863, p. 37.

SURGERY.

DISEASES OF THE BONES AND JOINTS, ETC.

28.—ON DISEASE OF THE HIP-JOINT.

By RICHARD BARKWELL, Esq., Assistant Surgeon to Charing Cross Hospital.

[In our treatment of disease of the hip-joint we have no direct power over the inflammatory process, but we can do much towards annulling the influences which keep up the morbid action. Inflammation even of a very small spot of the joint produces muscular spasm, which, in its turn, causes widespread mischief. The femur is forcibly dragged upwards, and the inflammation thereby aggravated. If we can prevent this, the inflammation can generally be easily managed.]

The mode of preventing such upward pressure is evidently by counteracting downward force; and the only bearable method of applying this is, according to my experience, by elastic extension, which I adapt to the splint



already described to you, but which I will now bring before you again. It consists of thigh and pelvic portions. To the top and bottom of the thigh part brackets are affixed, each carrying a pulley; the upper one runs outwards away from the body; the lower one inwards, so as to lie two or three inches below the sole of the foot. A perineal band, embracing the upper part of the thigh and splint, terminates in a piece of stout catgut, which passes over the upper pulley, runs down the outside of the splint, and is tied to an india-rubber accumulator. A piece of strapping-plaster forms a loop under the sole of the foot, while its two ends adhere at the outside and inside of the leg, and are further secured by strapping the limb over them in the usual manner. To the loop under the foot another piece of catgut is fastened, which, passing under the lower pulley, runs up the outside of the splint to the india-rubber. Now it is evident that by fastening this catgut to the accumulator at any degree of tension, a downward force, antagonizing the muscular spasm, is kept constantly acting on the limb, exactly equal to that which was required to stretch the spring. I shall immediately be able to show you that this splint, properly used, will procure rest and ease even in

the most acute and irritable phases of the disease; and in these particular states the whole apparatus—viz., wooden thigh-piece, with metal pelvic portion—is necessary; but in the subacute or chronic phases, where our aim is to prevent pressure, but not absolutely to guard against every possible movement of the joint, the pelvic portion is unnecessary. The thigh-piece alone, with pulleys and pelvic band, may be used with perfect success. Whether the more simple or more complex apparatus be used it may be bandaged at once upon a limb which has not become very deformed; but if the contrary be the case, if the thigh be much drawn up, this cannot of course be done. And in such cases the splint may be fixed by the mere force of the india-rubber spring, without any bandage. Let the splint be placed on the bed by the patient's side, the pelvic band properly adapted, and its catgut brought over the upper pulley, &c., while the catgut from the foot is made to pass under the lower one: by stretching the india-rubber between these, we not only secure the splint, but also extend the limb until it becomes sufficiently straight to be bandaged to the instrument.

I do not intend to offer you downward extension as a perfectly new treatment; but it has never been applied with the same intention, nor in the same phase of disease, nor in a manner adapted to produce the particular effects which I maintain to be its only and its immense advantage. To various forms of splint, movable footboards have been fitted, which, when the patient's foot is made fast, can be screwed downward; but the rigidity of the force renders it unbearable. Nothing can be less scientific and more cruel than to exert a constant unyielding force upon a morbidly sensitive limb; therefore, just at the time when the starting pains and other signs show that extension would be most valuable the screw footboard is utterly intolerable. Another method is to suspend a weight to the foot by means of a cord passing over a pulley. One great objection to this is the difficulty of making counter-extension; no patient will long bear the weariness produced by tying him to the head of the bed. My splint presents none of these difficulties, the patient being confined nowhere but in the diseased limb, and the force being the reverse of rigid.

When the limb is contracted it will, under the power of this extension, gradually come straight, and therefore the accumulator wants occasional re-extension. If the lower catgut terminates in a narrow piece of tape or webbing provided with eyelets, and a steel hoop be fastened to the lower end of the accumulator, the necessary alteration can be very easily made by a nurse or other attendant. If you ever try to bring down a contracted limb during active hip disease by screw power or by weights, you will put your patient to grim pain, and produce no beneficial results; if you give chloroform, straighten the limb, and fasten it to a splint, the patient will awake to atrocious pain, for which you may employ large doses of opium without effect, and you will in all probability be obliged to release the limb, when it will be drawn up again. I have again and again drawn down a contracted limb by means of my extension apparatus during the height of the most distressing symptoms, not merely without increasing the pain, but absolutely with the effect of procuring rest and ease. You will remember some of the children who have been under my care. I wish to refer to one particularly, Jenny K., aged seven, who had for some time past had a contracted hip, and was under treatment for recurrent disease. She was suffering intensely, and, as is always the case with children in this stage when the starting pains are severe, she drew up her limb more and more till the front of the thigh was lying on the chest, and the heel almost touching the tuber ischii. I began the extension in spite of these difficulties. The child, who had great dread of any one touching the limb, cried at first, rather apparently from alarm than pain. She soon became composed, and the thigh descended gradually. She slept better that night than she had done for a long time, and the next day the limb was much straighter. Look also at the case of the boy in the children's ward, who was put under my care on the 23d of April. The thigh was very much drawn up, and the child suffered a good deal, and was very restless at night, crying a great while. On the 27th I

put on a splint without a bandage or pelvic portion—that is, a mere Desault's splint, provided above and below with pulleys, kept on simply by the force of the india-rubber acting on the perineal band and foot. The limb gradually came down, and the eyelet-holed tape had to be shortened. The child was much easier, he slept better, and began to gain flesh on the 30th of April.

The limb had come down so much that I was enabled to bandage it to the splint, and since that time two singular experiments have been forced on me in his treatment. The extension has been twice discontinued: the first time because I required an india-rubber spring for an acute and very painful case, and could only lay my hand on the one in question. The boy was without extension for two nights: in the first he was rather restless, and cried frequently; the second he spent almost entirely crying. The next day the extension was reapplied; that night he slept perfectly well. Extension was afterwards discontinued, because the dirty little fellow had wetted and soiled his bandages and pads, and this had not been discovered, so that when I looked at him he was somewhat exasperated. As soon as the extension was discontinued, restlessness and pain recommenced, and after a day or two the limb began to be drawn up again in spite of splint and bandages. Extension again redressed these evils, and the boy went out in October, with a straight, painless, but at present a weak limb.—*Lancet*, October 17, 1863, p. 442.

29.—ON EXCISION OF THE KNEE-JOINT.

By RICHARD G. BUTCHER, Esq., Surgeon to Mercer's Hospital, Dublin.

[The present article gives an account of the fourth successful case of excision of the knee-joint. It is a fine example of all that may be achieved. The patient, Joseph Magher, aged twenty, was admitted to Mercer's Hospital with incurable disease of the knee-joint. The disease originated in a long and wearying walk a year and a half before. When seen by Mr. Butcher there was an enormous effusion of pus and serum within the joint. The limb was flexed, the inner condyle diseased, the skin covering the joint purple in colour, and there was intense pain on the slightest movement. The bones did not, however, seem extensively engaged beyond the articular surface.]

The patient, supported by students in the horizontal posture, was brought into the operating theatre; the limb steadied at its angle of flexure on a long piece of board, to guard against the least shaking of it—the same which he had used on his removal from the country. I lay stress upon this mode of management, as confirmatory of the disorganized condition of the joint, which could scarcely bear the least tremulous motion even, without eliciting pain of the most acute character. Chloroform was now used with its most perfect effect—calm, total insensibility.

Standing on the left side of the patient, I divided the soft parts by a bold deep stroke of a heavy scalpel. The wound commenced below, over the head of the tibia, and was carried directly upwards for five inches, laying freely open the inner wall of the joint. An incision, similar in extent, commencing over the head of the fibula, was carried upwards through the outer wall of the joint; the two were then connected by a transverse cut below the patella; this at once laid freely and fairly open the joint; the superior flap was dissected upwards; then flexion of the limb was forced, to put the fibrous structures externally and within the joint fully on the stretch, and so facilitate their more ready division. The former included shreds of the lateral ligaments, and spread out fibres of the involucre, whilst the latter embraced the crucial ligaments which had only partially perished, a limited destruction which will most satisfactorily account for the non-displacement of the articular surfaces of the tibia and femur from their rightful axis. The parts being thus divided, the lower flap was detached somewhat downwards, whilst the edge of the knife was kept very closely up to the posterior surface of the

tibia and back of the condyles; the immediate connection of parts were thus thoroughly freed from their adherence to the line beyond the articular surface on either bone; and this is all that is requisite, as then the finger will detach, by vigorous pressure, the soft parts from the bones to the required extent, in this their posterior aspect. By this simple manipulation the artery is not only secured from injury, but it remains undisturbed in its bed, and the popliteal space is not encroached upon or its anterior wall broken up. The extremities of the long bones being thus denuded to the required extent, I dissected out the patella from the upper flap; it was scarcely diseased—only to a very small extent; the margin of its cartilage was highly vascular, and its edges softened; but, independently altogether of its aberration from a healthy state, I removed it as a part useless to be kept. The extremities of the femur and tibia presented a very different condition; here the amount of disease was most marked; the cartilage over the condyles of the femur had nearly all perished, while that which remained hung in shreds; the osseous tissue was eaten away in some places to the depth of a quarter of an inch. The tibia presented a like disintegration of its articular surfaces; not only were the inner-articular cartilages altogether removed, but the cartilage of incrustation was eaten away to a great extent, there being no trace of that covering the external articular surface, while that covering the internal one was detached altogether, lifted up in the centre by sharp debris of bone—the bone subjacent being eaten away freely, and all depressions and cavities filled with a dark sanguineous fluid. I removed the exposed surface of the tibia by passing the blade of my own saw behind it, and cutting from behind forwards, removing a slice about half an inch in thickness; the proceeding was effected with great rapidity, and the section was all that could be desired; the bone was healthy, as revealed, and the surface smooth, and even as a die. In like manner, the section of the end of the femur was made from behind forwards, the line of division passing about the eighth of an inch higher than the sulcus between the condyles; the edge of the fine saw being made to enter the bone exactly corresponding to where the soft parts were pressed back from it, a few cautious rapid movements of the instrument completed its separation. Thus, about an inch and a half of the femur was removed; and in this was safely included all the bone that was diseased or implicated in the mischief. I shall here, again, impress the caution that was observed in the direction of the blade of the saw, so that when the femur was fairly extended in the horizontal position for adaptation to the tibia, the section might be perfectly vertical, so as to allow the most even adjustment—surface applied to surface throughout.

The cancellated texture divided by the saw was most healthy in character. I next clipped away, with strong curved scissors, masses of gelatinous material incorporated with the disorganized synovial membrane, and the extensive bursa beneath the extensor tendons, which likewise was deeply implicated, being thickened, discoloured, and vascular, and filled with fluid. So degenerated was all this tissue that I dissected the entire away. The bleeding was arrested by ligaturing four or five arteries. The limb was now brought, with facility, into the horizontal position, and it was astonishing how evenly and well the bones lay in apposition—throughout every point in contact. The anterior wound was brought together with four points of the silver suture, and the extremities of the lateral wounds, internal and external, were in the same manner approximated and retained together, while the centre of each was left free and gaping, to allow of the ready discharge of fluids. The limb, rigidly held, was then lifted from the table, and the box used by me for such purposes steadily slipped in; pads were so arranged that when the limb was let down its posterior surface was evenly supported throughout, the normal gentle curve of the ham being preserved; at the same time the heel elevated, pressed forwards, the entire member lying as straight as possible. The sides of the box were in turn elevated, the foot support put in to maintain the tibia pressed up to the femur, pads on either side so as to secure rest, to prevent wobbling. The anterior splint, the use of which in former papers I have laid so much stress upon, was then laid on,

properly padded, the straps buckled round all, steadying the entire as one piece, while the body-belt was thrown round the trunk and fastened, so as to keep the long arm of the splint close to the side, and by so doing ensure the security of the limb in its proper axis.

The patient rapidly rallied from the effects of the chloroform, and was conveyed, perfectly supported in the horizontal position, from the operating theatre, and placed in a comfortably heated bed. So efficiently did the anæsthetic act, that when the man awoke to consciousness he was astonished to hear that the operation had been performed, as he had not the least remembrance of pain.

A careful examination of the portions of bone removed confirmed, in a most striking way, the great accuracy of the diagnosis, and beautifully illustrated the total disintegration of the articular surfaces, with deep and widespread caries of the osseous tissue in numerous places, all indicative of incurable disease, and an efficient cause of the withering fever that threatened life.

[The last report of the case is the following:—]

He has long since put aside the crutches, and can now walk about without stick or support of any kind. When he is at rest and dressed, it would be impossible to perceive any shortening or the least deformity, nothing that the most scrutinizing eye could detect; and when naked the proportions of symmetry are almost preserved—the axis of the limb is somewhat straighter than the sound one, the gradual inclination of the thigh bone inwards being, of course, not preserved. The foot rests upon the ground, and is as firmly planted as the sound one. The muscular development of the leg nearly equals that of the sound one, while the thigh, by measurement, is fully as large. The vertebral column has compensated for the shortening of the limb, the spine of the ilium being nearly two inches lower than that on the right side; yet the head and shoulders do not droop; there is manifested no change from their strictly normal or horizontal position. The man walks with great freedom from the hip, the motions of which joint are as perfect and as much under control as if the limb had not been rendered rigid at the centre. All the movements of the ankle joint and tarsus being sedulously preserved, contributes, in a very marked manner, towards facilitating progression.—*Dublin Quarterly Journal, May, 1863, p. 269.*

30.—ON RESECTION OF THE KNEE-JOINT IN CHILDREN.

By THOMAS SMITH, Esq., Assistant Surgeon to the Hospital for Sick Children.

[During twelve years, from a very extensive field of practice, consisting of that class of society most of all liable to joint disease, but three cases have occurred at the Hospital for Sick Children, where the operation of resection of the knee-joint has been thought justifiable.]

The object of the operation is to save the patient's limb, to give him a firm and unyielding support for the weight of his body by obtaining bony ankylosis between the cut surfaces of tibia and femur; thus it accomplishes all that amputation can do, *i. e.*, the removal of the local disease; and in addition it aims at providing a natural instead of an artificial support for the body. Any operation purporting to be a resection of the knee which does not fulfil the above conditions cannot fairly be considered as such, nor can the favourable results of the operation be anticipated. For instance, if the articular surface of one bone be removed, and the opposite, from its comparative freedom from disease, be spared, no bony union can take place until the cartilaginous surface of the bone that was spared be separated by ulceration, and its denuded surface be brought in contact with the sawn end of the opposite bone. This process is an exhausting and tedious one to the patient, I need scarcely say, and it is for this reason that the patella should be removed in these cases, as its presence in the wound retards recovery, and in no way better the condition of the limb when recovery has taken place.

Dr. H. Hodges, of Boston, in an essay on excision of joints, has given us some statistical information on this subject. In sixty-one cases of resection of the knee where the patella was not removed, the per-centage of deaths was 39 per cent. greater than in the cases where this bone was taken away. The same gentleman, in contrasting a large number of cases of recovery from this operation, where the patella was and was not removed, finds that the non-removal of the patella adds thirty days to the period of convalescence.

So far as my influence extends, I would exert it to persuade you that the operation of resection of the knee is not one of expediency, as it is called, nor one lightly to be undertaken, since it—with the contingency of a secondary amputation which it always involves—exposes the patient's life to as much danger as does primary amputation of the thigh. Neither is the operation suited for acute inflammatory disease of the joint, but I would persuade you to regard the operation as a substitute for amputation in chronic disease of the synovial membrane, cartilages, or articular ends of the bones which, either by its exhausting character endangers the life of the patient, or is in its nature incurable. The disease, if of the bones, should be limited to their articular ends, while visceral disease, advanced age, or a very feeble constitutional condition alike preclude the performance of this operation.

For injuries of the joints the operation has been but occasionally put in practice; indeed, it is seldom that the knee joint is exposed to accidents sufficiently severe to justify resection that are not at the same time so dangerous to the vitality of the limb or to life itself as to necessitate amputation.

It has been performed for gunshot fractures of the articular ends of the bones, for wounds of the capsule with bruising of the bones, and for compound dislocation; but, with a few exceptions, the general success of these operations has not been remarkable, nor such as to encourage a repetition of the proceeding under similar circumstances, though at the same time, the success has been sufficient to justify the operation in exceptional cases.

Resection of the knee is seldom applicable in the case of young children; firstly, because in them diseases of this joint, when in progress, are more amenable to treatment than in adults; secondly, when destruction of the joints has taken place osseous ankylosis is more easily attainable in the actively growing bones of the young than in the completely ossified bones of older people; and thirdly, that any extensive removal of bone from this part of the limb of a child so as to interfere with the cartilaginous line between the epiphysis and shaft of either the tibia or the femur will be very likely to lead to complete arrest of growth in the limb, or so to check its growth as to produce in adult life a serious and irremediable inequality in the length of the lower extremities.

That this arrest of development should take place, and that the subsequent inequality in the length of the lower limbs should be occasionally so startling, is not to be wondered at when we consider that in the immediate neighborhood of the knee-joints are the two most actively growing epiphyses in the whole body. In one case operated upon by Mr. Pemberton, where three and a quarter inches of bone were removed, six years after the operation the limb was shrunken, blighted, and nine inches shorter than the opposite one. It was a result of this kind in a young patient that led Mr. Syme years ago to abandon the operation altogether, and since then other cases have come to light in which the same accident has occurred. Indeed, our present state of knowledge justifies me in saying decidedly that if, in the operation, the layer of cartilage separating the shafts and articular ends of the bone be intruded on, in all probability the growth of the limb will be seriously interfered with. I would refer any one who is interested in this subject to a most useful paper in the Medical and Chirurgical Transactions for 1862, where Mr. Humphry has collected the histories of many cases which bear upon the effect this operation exercises on the subsequent growth of the limb. On the other hand, as bearing strongly on this point, and in order rightly to estimate the value of this objection, I would remind you that without doubt long-continued disease of the knee-joint in childhood of itself

often leads to great inequality in the length of the two lower limbs in adult life.

Perhaps of all diseases of the knee-joint the most intractable is that form of synovitis termed pulpy thickening of the synovial membrane, or white swelling. As you are aware, in the later stages of this affection suppuration generally occurs in the joint, the cartilages ulcerate, the bone becomes eroded, the ligaments give way, and the leg becomes dislocated outwards and backwards upon the femur—the patella slipping over the front of the joint towards the outer condyle of the femur.

Now, it is to this form of disease in its later stages that resection is particularly applicable as a method of treatment, and for these reasons:—This disease is generally limited to the joint cavity and articular ends of the bones; it rarely of itself leads to bony ankylosis, and the dislocation which is so liable to take place, is, so far as I know, irremediable. Do not misunderstand me; extreme flexion of the limb alone can be satisfactorily treated, and the limb can be restored to a right line, but I know of no way nor any apparatus by which the leg can be brought forwards again when once it has slipped behind the articular surface of the femur.

The greatest local difficulty in the management of these cases is to counteract the tendency of the bones of the leg to slip back behind the lower end of the femur, the latter bone having a disposition to ride over the tibia. The splint therefore on which this limb has been placed has a pad upon it opposite and beneath the head of the tibia, while over the front and lower part of the femur is a short splint, which you may observe was fixed in position with a buckle and strap to allow of pressure being maintained without disturbing the dressings. One may fairly hope that the limb so put up will not need readjustment for at least a month. In the performance of this operation I would venture to advise you to leave the closing of the wound in the soft parts until after the splint has been applied and the limb finally fixed. This will allow the surgeon to assure himself of the due apposition of the bones and of the cessation of hemorrhage, which latter, if it occurs after the patient is put to bed, is troublesome, and hinders the reparatory process considerably.—*Med. Times and Gazette, Sept. 5, 1863, p. 241.*

31.—ON INFLAMMATION OF THE EPIPHYSES, OR THE ARTICULAR EXTREMITIES OF BONES.

By THOS. BRYANT, Esq., Assistant Surgeon to Guy's Hospital.

The epiphyses of the bones of children are remarkably prone to inflammatory affections; and it is due to this fact that diseases of the joints at an early age are so common and so obstinate. It may without fear be asserted that at least two-thirds of the cases of joint-disease which are found in children are due to inflammatory affection of the epiphyses; and the symptoms by which this disease is to be recognised are not obscure.

As previously stated, these epiphyses may be regarded as independent parts; they are still distinct as bony centres, and have not yet united to the shaft and become part of the body of the bone. As a result, the local symptoms, which accompany these inflammatory affections are confined to the epiphyses, and seldom, even at a later stage, involve the shaft itself.

The earliest symptoms of any inflammatory affection of the epiphyses are somewhat obscure, a mere aching of the part being probably the only one which is to be observed. To external observation at this early stage of the disease, there may not be any change in the appearance of the part, although some increase in the temperature of the integument over the bone is often to be recognised, when it is compared with the temperature of the integument above and below the seat of the disease. If the nature of the affection be not recognised, and some weeks or perhaps months be allowed to pass without its detection, other changes will make their appearance; and of these the most marked is an absolute enlargement of the bone.

It appears as a kind of dila'tion and general expansion, and will be at once observed when a comparison is made between the corresponding epiphyses of the healthy and the diseased side. The bone at this stage will probably be somewhat more tender than natural, firm pressure over it exciting pain. The increase of heat in the part will at this period be also very palpable.

As time progresses, and if the disease be allowed to take its course, other symptoms will appear; and of these, some effusion into the articulation is the most positive, this being the result of a low form of synovitis, from the extension of the inflammation to the synovial capsule. The nature of the disease is, however, the same. The synovitis is palpably secondary to the ostitis of the head of the bone; and, if the disease in this part have not progressed too far, the synovitis will disappear when the ostitis is cured. It will be thus seen that the progress of the inflammatory affection of the epiphyses is precisely similar to the inflammation of the shaft; a gradual expansion of the bone, attended by an aching pain, forming the chief symptoms. At a later stage of the affection, also, the analogy still holds good; for if the disease be allowed to go on unchecked, suppuration and the death of the bone will to a certainty take place; and, in the majority of cases, this suppuration will pass towards the joint, when disorganisation of the joint-cavity will then be added to the difficulties of the case. It is an affection such as this which is often described as a strumous disease of a joint, but which is really essentially an ostitis attacking the epiphysis or head of a bone in a cachectic child, and which is as free from any strumous or tuberculous disease as any other inflammatory affection of a cachectic type.

If the nature of this affection be detected at any early stage, a complete cure may unquestionably be obtained in a large proportion of the cases which fall under observation. It is too true, however, that in the majority of cases the disease is not recognised in its primary condition; the want of positive symptoms which are capable of exciting fear in the uneducated mind being the probable cause of this neglect, as the mere aching of the bone or joint is regarded only as a "growing pain," and the enlargement of the bone and increase of heat are not positive enough to be observed. Should, however, the surgeon at this stage be consulted, he must be alive to the nature of the case. I always look upon a "growing pain" with suspicion, and, on examination, seldom fail to find its cause; osteal disease being the chief. I would, therefore, wish to impress upon all men the necessity of a careful examination of a limb the subject of such a complaint; and, in all cases of "growing pains," to fear some inflammatory affection of the osseous system. This fear may be wrong; but by carrying it into practice much benefit will be obtained, and many limbs and joints saved which would otherwise be lost. I could quote numerous cases illustrating these facts, both the evils of delay and the benefits of the practice: but no practical benefit could be obtained by doing so, if I have succeeded in convincing you of the truth of these remarks.

Treatment.—In the earliest stage of this form of disease, the treatment is very simple. Like the inflammation of the shafts of the bones, it is a constitutional affection, and one of debility. It is found in weakly and cachectic subjects, and in strumous or scrofulous, if a simple cachexia signifies the same. It requires, consequently, a tonic regimen and medical treatment; good air, good living, and tonics being absolutely essential. As local remedies, rest in the horizontal position and warm fomentations are likewise most important. Under such treatment, this disease may readily be checked in its earliest stage; that is, if no further organic change in the structure of the bone has taken place, than its infiltration with inflammatory product, and its consequent expansion.

When the inflammation has extended to the synovial membrane, and an effusion into the articulation has been produced, the same treatment is to be carried out as we have recommended in the less complicated example; but the prognosis of the case is not so favourable, and greater care in the carrying out of the instructions is to be observed. A successful issue is still, however, to be anticipated; a bad result being looked for only in the

extremely cachectic and unhealthy subject. Should the inflammation, however, end in partial or complete necrosis or death of the bone, suppuration and disorganisation of the joint will, in all probability, be the result; but such cases will claim our notice under another head.

It will be remarked that, although this disease is an inflammatory one, leeching, blistering, and mercurials have not been alluded to; and I do so now simply to express the opinion that they are not only useless, but absolutely injurious. Cauterisation of a joint affected with this disease is not a practice from which much benefit can be expected.

Inflammation of the Soft Pulpy Layer which exists between the Shafts of the Long Bones and their Epiphyses.—It is now well known by anatomists that, at the junction of the shafts or centres of bones with their epiphyses, there exists a soft pulpy vascular layer of connective tissue, by which the growth of the body of the bone is maintained, and its subsequent union with the epiphyses secured. At an early period of life, this pulpy layer is well marked; for as growth and development are at this time most active, the tissue is necessarily very vascular. Obediently also to the law that, in proportion to the activity of the action going on in the part, is its disposition to inflammatory disease, this tissue is unquestionably highly prone to inflammatory affections. I believe that a large proportion of the cases of acute suppuration about a joint in children have their origin at this seat; and this is often shown to be the case by an exfoliation of some portion of the surface of bone in contact with this pulpy layer. If the disease involve the whole connective tissue of the bone, a general exfoliation of the upper portion of the shaft may be produced; or, if this result do not take place, some arrest of development of the bone's growth may be the end.

The disease may make its appearance as an acute or a subacute affection. It is, however, generally acute, and is manifested by a marked swelling at the seat of the disorder, accompanied with great pain and constitutional disturbance. An abscess will then form, which may rapidly envelope the joint and upper part of the limb; and, when this has opened and discharged its contents, convalescence may result; or, what is more frequent, a piece of bone varying in extent will come away, and a cure follow.

The majority of cases such as I have described appear about the shoulder-joint, although the disease may be witnessed at any other articulation.

It must be added that, in this disease, the epiphysis itself is not often involved; this pulpy layer being more intimately connected with the shaft, the growth of which takes place through it; the epiphysis having an independent vitality and independent vascular supply. As a consequence, disease of this structure involves the shaft in preference to the epiphyses.—*British Medical Journal*, June, 13, 1863, p. 610.

32.—ON DISLOCATIONS OF THE THUMB AT THE METACARPO-PHALANGEAL JOINT.

By J. C. WORDSWORTH, Esq., Surgeon to the Royal London Ophthalmic Hospital, and lately Assistant-Surgeon to the London Hospital.

Many years ago, my attention was particularly directed to the subject of dislocations of the thumb and fingers, by a case that occurred in the practice of the London Hospital while I was the house-surgeon. The cause of difficulty in reducing them was so plainly illustrated in this case that I was induced to publish a short notice of it in the pages of the *Lancet*, together with two other cases that seemed to confirm my conclusions. It had been previously stated, by various writers, that the strong lateral ligaments were the obstacles to reduction; and by other surgeons the difficulty was attributed to malposition of the tendons. Amongst the latter were the late Mr. Stanley in our own country, and Messrs. Lisfranc and Dupuytren in France. At the time I wrote I was not aware that such opinions had been published; I therefore gladly avail myself of this opportunity of disclaiming

any credit for my share in the elucidation of this important subject, and am content to attempt to illustrate and confirm their opinions.

The case to which I refer was one of *compound* dislocation of the first phalanx of the thumb upon the dorsum of its metacarpal bone, in which the tendon of the long flexor was found between the ends of the bones, and thus accounted for the difficulty in restoring them to their proper positions. A second instance illustrated the subject from another point of view, by showing that in some cases the tendons are not displaced, and that reduction is then easily effected; and my third demonstrated the practicability of a procedure to overcome this difficulty, by first restoring the tendon to its proper position. I will then briefly reproduce the essentials of these three cases; for though I have had many opportunities, both in public and private practice of confirming this view of the subject, and of testing the practical value of it by reducing dislocations which have baffled others, yet I could not cite any that afford more satisfactory data for the solution of the question.

I gladly embrace this occasion to offer my sincere thanks to many friends who, being aware of my interest in these cases, have afforded me numerous opportunities of seeing them; and I believe I am at liberty to state they fully approve and confirm what I have to offer on this subject.

Case 1.—A *compound* dislocation of the first phalanx of the thumb, produced by a fall on the extended hand, the phalanx being on the dorsum of the metacarpal bone. A wound extended across, and opened, the joint on its palmar aspect. An attempt at reduction was made in the usual manner, simply by extension, and failed. A close scrutiny of the wound showed the tendon of the long flexor between the ends of the bones, having passed round the *ulnar* side of the end of the metacarpal bone, and by traction been drawn across the joint. Various attempts were made to remove the tendon from its new position without doing further mischief; but these being unsuccessful, it was divided with a bistoury. Reduction was at once accomplished, and no displacement recurred.

This case, then, sufficed to convince me of the presence of the obstacle as well as of its sufficiency, affording as it did positive proof that the tendon prevented reduction, and that as soon as it was removed no obstacle remained. I then naturally desired to know whether this dislocation ever occurs without the complication of the misplaced tendon; and if so, are such cases difficult of reduction? A little reflection on the conformation of these parts convinced me that it was not a necessary condition of the dislocation, but rather an accident depending on the force and direction of the violence that produced it. Again, I was also persuaded that it must be possible to diagnose this condition; for if the tendon remained *in situ* it would be perceptible, stretching over the end of the metacarpal bone, and drawn away from the first phalanx by the altered position of that bone. I had not long to wait for a reply to these inquiries, for my next case afforded all the information that I desired, and justified my anticipations.

Case 2.—A simple dislocation upwards and backwards of the first phalanx of the thumb. A careful examination soon after the accident occurred, and before any attempt at reduction had been made, enabled me to decide that the tendon was *not* displaced from its position between the tubercles on the lower end of the metacarpal bone, but could be recognised as a distinct band (especially when slight traction was made) passing from bone to bone. Then, as to the reduction, slight force only was required to restore the bones to their proper positions—viz., by simple extension from the last phalanx.

Having, then, this positive and negative evidence of the difficulty arising from the interposition of the tendon, I next sought for the best means of overcoming it. I conceived that the tendon might be carried back to its proper place by manipulation merely, without having recourse to division, and so leave the structures uninjured. I therefore devised the following procedure, and determined to test its application as soon as an opportunity permitted:—The wrist being fully bent, so as to relax the long flexor ten-

don, let the surgeon take the thumb in one hand and abduct it from the fingers, while with the other hand he steadies the metacarpal bone. He then is to rotate the thumb, so as to make the tendon retrace its course *forwards* and *inwards* around the lower end of the metacarpal bone, using the first phalanx as a lever in this intention. If this do not succeed, let him hyper-extend the first phalanx, so as to stretch the flexor tendon, rotate the phalanx *outwards*, and then carry it round the *inner* tubercle of the metacarpal bone, so as to dislodge the tendon from between the ends of the bones.

Case 3.—A simple dislocation of the first phalanx upon the dorsum of the metacarpal bone. No trace of the tendon could be discovered. Attempts to reduce the dislocation by extension had been made, and were renewed, that the manipulation might be fairly tested after other means had failed. The tendon was readily replaced by this means, coaptation restored, and no tendency to displacement left.

I believe that I was thus enabled to place the argument on a basis so solid and satisfactory that it is impossible to resist its validity—indeed, that my cases reduced the matter to a demonstration. I will not dogmatize so far as to insist that all difficulty arises from the cause to which I was then induced to attribute it; for I can easily conceive that cases may be complicated by the altered positions of the flexor brevis as well as by the lateral ligaments. Still, I am convinced how important it is in all scientific inquiries to be well assured of our conclusions; that we may know how to apply our science with energy and decision; and that it is both politic and philosophical to be content with *one* solution of a problem so long as it enables us to act with effect; though it is equally right that we should remain open to conviction, however satisfied we may be with our opinions, when they are shown to be either controvertible or inadequate.

Since my attention has been directed to these cases, I have had much reason to believe that dislocations of the fingers at the metacarpo-phalangeal joints are also complicated by the malposition of their tendons; and, acting on this conviction, I have succeeded in reducing them by mere manipulation after considerable force had been vainly applied.

I am induced to recall the attention of the profession to this important subject from noticing that the valuable surgical works that have emanated from the press of late have not embodied or endorsed this view of the difficulties. The ligaments are still considered the principal obstacles to reduction by authors generally, though I feel assured that a more extensive observation of these cases, by the great body of practical surgeons will confirm my own convictions, and lead to the adoption of a better and more successful mode of treatment.—*Lancet*, October 17, 1863, p. 443.

ORGANS OF CIRCULATION.

33.—CASE OF DEATH FOLLOWING THE SUBCUTANEOUS INJECTION OF A NÆVUS.

By ROBERT B. CARTER, Esq., Stroud, Gloucestershire.

Ellen G., at that time aged four weeks, first came under my notice seven weeks ago. She was a well-grown and in other respects healthy infant, but the lower half of her nose was a mass of mixed nævus, which involved the columna and both alæ, and enlarged the feature to at least three times its natural size. The disease was apparent at birth only as a small speck, and was rapidly increasing. Its size admitted of great reduction by pressure, but it refilled as soon as the pressure was removed, and, when the child cried, was in imminent danger of bursting. A scratch from the child's own finger-nail had already produced severe hemorrhage.

The hot needle was freely used a day or two after the child's first visit, chloroform having first been administered. Even with this there was much hemorrhage from some of the punctures, and, the needle having once entered

the nostril, there was free bleeding from the mucous membrane. Collodion was applied to the surface, and the treatment seeming to have checked the growth in some degree, the hot needle was used again much more freely than at first.

The resulting inflammation did not appear to do more than stop the growth of the part actually operated upon, and the disease immediately began to extend upwards so rapidly that in two or three weeks it covered the whole of the nose. The new portion was chiefly subcutaneous, but the skin covering it presented a few red vessels, and was very thin. At the bridge of the nose the diseased mass was not less than an inch and a-half in width. Contractile collodion had been applied regularly, and proved perfectly useless.

The treatment proper to be adopted seemed a question of some difficulty. The infant had been vaccinated on the arm before I saw it. Pressure and ligatures were alike inapplicable; the actual cautery had failed. Superficial cauterisation would have entailed great risk of fatal bleeding on the separation of the eschar. The nutrient arteries were uncertain, and probably numerous. Removal of the growth would have been removal of the whole nose, not to mention the probability of the disease extending backwards. Under these circumstances, deep cauterisation seemed to be the only resource.

The use of caustic pencils pushed into the substance of the growth was contemplated, but decided against on the score of pain; and it was finally determined to inject a solution of perchloride of iron into the mass. This was done, on the 7th inst., without chloroform, to a small portion of the right ala. The pain seemed to be severe, but the effect appeared likely to be useful.

Yesterday morning, the 11th instant, as a preparation for another injection, chloroform was again administered. We did not anticipate any long-continued pain, and therefore did not place the child so fully under the anæsthetic as had been done for the cauterisation. The inhaler being removed, a subcutaneous syringe, containing ten minims of the same solution that was used on the former occasion, was introduced through the sound skin of the cheek just outside the margin of the growth, and carried about to the centre of the latter. The effect of the chloroform had partly subsided, and the child cried out at the puncture. The solution had so far acted on the barrel of the syringe as to impede the working of the piston, which stuck fast, and then yielded with a jerk, expelling five minims of the solution. A discoloured spot immediately appeared on the part of the nævus over the point of the syringe, and the next moment the child gave one shriek, one short convulsive struggle, and ceased to breathe. My partner, Mr. Gregory, who had seen the case from the first, was fortunately present, and we employed artificial respiration, Faradisation, and stimulants, until all hope was over. At the first moment I forced the mouth open and drew the tongue forward, producing a single gasp, and two or three other gasps followed, each more feeble than its predecessor.

In order to see if any similar accident was recorded, I turned to the various books treating of nævus that were then at hand. They were: Wilson on "Diseases of the Skin," Wharton Jones's "Manual of Ophthalmic Surgery," Skey's "Operative Surgery," Fergusson's "Practical Surgery," and Drutt's "Vade-Mecum." The first four authors all mention the treatment by "injection of irritant fluids," among the plans that may be pursued, and give no caution as to any danger attending it. Drutt mentions that the practice has caused death by convulsions, and refers to a case reported in the 21st volume of the Medical Times and Gazette. He does not mention the situation of the nævus, nor what fluid was used, and the case appears to be an isolated one. I have not the volume to refer to.

The result of the present case has been in every way calamitous, so distressing to the parents, and so painful to the Medical Profession, that I hope you will be able to find room for it, as a warning to others. I use what is, I believe, a generally recognised method. *Medical Times and Gazette*, Sept. 5, 184

ORGANS OF RESPIRATION.

34.—DESCRIPTION OF A LARYNGOSCOPE.

By FRANCIS MASON, Esq., Assistant Surgeon to King's College Hospital.

The laryngoscope is becoming so generally adopted by the profession, that no doubt can exist of its value as an important aid in the diagnosis, and consequently, in the treatment of disease. Notwithstanding what has been written regarding the examination of the vocal cords, epiglottis, and other appendages of the larynx, we have been scantily supplied with descriptions of the various instruments employed, and of the mode of their application.

The laryngoscope being, as its name implies, an arrangement for "looking at the larynx," the simplest apparatus by which this end may be attained is that which will be most readily received by all observers.

The instrument was made for me by Matthews, of Portugal street. It is, in most respects, similar to that described by Dr. George Johnson elsewhere, and which he has done me the favour of showing me. The essential point of difference, however, is that the mirror, instead of working on a hook bent at an angle, is attached to the forehead-pad by means of a ball and socket-joint. The universal movement thus afforded enables the surgeon to direct the rays of light with the greatest accuracy, and, by allowing him to assume a posture most easy to himself, to make a prolonged examination without fatigue.

The apparatus consists of a slightly concave mirror, three inches and a half in diameter, having no central aperture. To the centre of the back of this is attached an accurately fitting ball and socket-joint, provided with a screw to tighten the joint, should this proceeding be necessary. A stem, continued from the ball in front, is fixed to the forehead-pad, and from the extremities of the forehead-pad is fastened an elastic band, which encircles the head. Three or four laryngeal mirrors, varying in size, and set at a proper angle, complete the instrument. Each mirror fits the handle.

The mode of examining the vocal cords is, in most cases, simple enough, and may be thus briefly described. The patient being seated on a firm chair, a lamp giving a brilliant and steady light is placed on one side of, and a little behind him. The surgeon, sitting opposite, fixes the mirror on the centre of his own forehead, and desiring the patient to advance his head slightly, directs the rays of light through the mouth to the back of the pharynx. The laryngeal mirror, having been previously warmed to prevent its becoming steamed by the breath, is now passed rapidly over the tongue, and made gently to elevate the soft palate. It should be borne in mind that the objects, as seen in the mirror, are reversed from before backwards. The base of the tongue, perhaps, will be first observed; next will be seen the epiglottis; and then, with careful manipulation, assisted by the patient saying the word "Ah!" the vocal apparatus may be demonstrated. In some cases it will be necessary to hold the tongue forward with a towel; this proceeding, however, greatly distresses certain patients, the examination of whose throats may be better made either by depressing the tongue with a common spatula, or by requesting them to retract and bury this organ, so to speak, in the floor of the mouth. Should the sunlight be employed to illumine the larynx, the laryngeal mirror will, of course, be the only instrument required.

Thanks to the labours of Dr. Gibb, much has already been done in this country to prove the value of the laryngoscope in the investigation of the physiological as well as the pathological condition of the air passages, and much more remains yet to be accomplished. By moderate practice, however, one may make himself familiar with the instrument, and by proper treatment in disease, alleviate much suffering and annoyance, which have lasted for months, or even for years.—*Lancet*, Aug. 8.

ALIMENTARY CANAL.

35.—AN UNUSUAL FORM OF DOUBLE HARE-LIP.

By RICHARD G. BUTCHER, Esq., M.D., M.R.I.A., Dublin.

[The patient, a little boy of two years and seven months of age, was admitted to Mercer's Hospital with a most unusual and hideous form of hare-lip. The maxillary bones on either side were scarcely at all developed in front, and there was scarcely any attempt at separation between the cavity of the mouth and that of the nose. There was, in fact, an entire absence of the palate plates of the palate bones. There was no soft palate, not even any little pendulous flaps of it on either side. The vomer was materially changed in bulk and volume, so as almost to obliterate its characteristics altogether. The lower edge had attained a considerable size, so as to form, with the covering membrane, a rounded mass, forming a projection centrally, firm and dense in structure. The alæ of the nose were widely dragged outwards. Much thought and consideration was necessarily required to plan the various steps of any operation undertaken with the view of remedying so complicated a deformity. Mr. Butcher observes:]

He who first operates has the entire of the deformed parts in their fullest development, such as they have been created—soft parts, corrugated and diminished in proportions; yet they are elastic, extensible, and permit of separation, of traction, to a vast extent. In this early state, by free and extensive dissection, abundant material can be borrowed from the cheeks and sides of the face to cover in the faulty gap in front, while the irregularly developed maxillæ, the protruding inter-maxillary bones, the abnormal septum, may all be pared down, split up, thinned; portions removed; spaces cut out, defined in form, for the reception of distorted, thrust-out parts; to be held in unity by wire sutures, by needles, until steadied together by a new and living bond, permanent for ever.

Should these early efforts of the operation fail, attempts made after seldom prove so satisfactory, and for these simple reasons:—Much has been taken away, the soft parts that remain which refused the union; from the cutting, from the piercing, from the non-extensibility consequent upon the reparative process, efficient to heal, is very imperfectly conditioned to endure an increased amount of traction, that which must be enforced, so as to bring surface to surface, and offer even the chance of union.

These secondary operations, as I have well determined from repeated examples, require more skill, more tact, more delicacy, at the same time boldness of manipulation, to accomplish all that is demanded and required, than any primary case can possibly do. Hence the deep stress which I lay upon the responsibilities which devolve upon the surgeon who first undertakes to meddle with and endeavours to rectify those bad cases of hideous deformity consequent on arrest of development. I shall now proceed to detail the operative proceedings, which, after due reflection, I considered most applicable in this frightful case. On the morning of the operation the child had been abundantly fed on two occasions, so as to do away with the necessity of giving food for some hours. The little fellow was rolled in a sheet, not too tightly, merely so as to retain the arms, but not in the least to interfere with the ingress and egress of air to and from the chest in lusty crying; thus he was placed in the nurse's arms, who sat upon a strong chair, with his head resting upon her left shoulder, the chair being elevated to a convenient height. I commenced in this way:—I first struck a tenaculum into the central fleshy part, lifting it upwards, and making it tense at the same time; then sweeping the knife rapidly beneath, dissected it up to its attachment from the tip of the nose. I guardedly preserved every atom of it by semilunar strokes of the knife, by which method the curved and matted-down borders were not infringed upon, whilst the osseous projection was fairly exposed. The tenaculum was then disengaged from this soft portion, and it was not meddled with further in this stage of the dissection. I next proceeded to deal with the projecting osseous piece. All its features, and char-

acters, and intimacy with the vomer being thoughtfully considered, duly weighed; the soft tegumentary piece being guardedly drawn up by an assistant, I cut, with a small-bladed sharp bone forceps (constructed, by order, for me, and most efficient for such purposes) the vomer, where quickly expanding for fusion into this morbid development, almost directly backwards, there being but very slight inclination upwards, to the depth of about three-quarters of an inch; the blades of the forceps were then placed on either side of the projecting piece, and a thick slice removed from its anterior surface, the two incisions meeting above at nearly a right angle; thus a very large portion was taken away. Though this proceeding was more rapidly executed than the time taken for its description, the bleeding was most alarming. A very large vessel, nearly the size of the radial artery, nourished this unnatural development; and when it was divided the blood shot out vigorously in a rapid current. However, I had anticipated, from antecedent cases, the likelihood of such an occurrence, and was prepared for it with the actual cautery. A fine-pointed instrument, heated to its full temperature, was resting in the furnace; quickly it was thrust into the divided bone after the retracted artery, and efficiently it fulfilled its duty on a second repetition. Hemorrhage stayed, I proceeded still further to prepare this piece to fill up the space between the imperfectly developed maxillary bones, and so to afford an even support to the upper lip when restored. The forceps was next applied behind the projecting piece, and made, by two incisions, to cut a triangular piece out of the vomer, the apex above, the base inferiorly. My own forceps for dividing the stalk (figured in the Dublin Quarterly Journal, May, 1860) was next laid on, and the compact osseous bar clipped, while the less dense and soft parts on either side of the stalk were spared, the vascular supply descending to the piece, essential to be preserved, not interfered with, and thus its life secured.

The various cuttings just detailed rendered this piece most amenable to management—the taking away of the large portion in front, removed forever what was obnoxious there, the peculiar angle cut out behind, and the clipping of the dense stalk in the centre, nearly through its entire depth—allowed the preserved piece to be forced back, most gently, without risk of its vital supply; and when the lateral borders of it were pared, and the marginal gum on the maxillary bones refreshed, it was astonishing how well this extensively pared dense piece rested in the recess. So accurately were all these details carried out, effected, there was no tendency or disposition of the piece to start forward; and, from the evenness of the cuttings, there were no sharp edges or irregularities anywhere. The solid parts being constructed, I again returned to the central soft piece, and seized it with a tenaculum, at its point, and cut it with straight scissors into a perfect V shape, preserving it to its very lowest point. The left portion of the lip was then seized with the tenaculum, just external to its curve, and lifted upwards and outwards, while the scalpel was carried beneath it, cutting extensively, widely, the mucous membrane, and freeing fully the expanded and pinned, down ala. This being all set free, liberated, the knife was still carried outwards, detaching the cheek, and thus creating that sufficient laxity—whereby an approximation of the parts might be secured—that more constrained relaxation favourable to union; the right portion of the lip and corresponding ala of the nose and cheek, were treated after a similar manner. Such being efficiently done, the curved scissors, preferred by me in such cases, was applied, first upon the left side, being laid on at the red border, just external to the point where the tenaculum was inserted; this portion of the lip being stretched and made steady, on the instrument being quickly, energetically closed, the separation of the rounded border was accomplished to its highest part into the nostril, at its point of attachment with the ala. The right portion of the lip was treated in every particular in a similar way. During these steps of the operation scarcely a drop of blood was lost, so carefully was pressure made on both facial arteries. Next came the important stage of the operation—the arrangement of all the cut parts, and the adaptation of all the divided surfaces. The needles which I use for this adjustment were

such as I have figured and approved of in my essays on the operative measures necessary in the treatment of hare-lip—the long, slender, steel needle. The first of these was passed from left to right, its entrance the fourth of an inch external to, and above the left ala; being thrust towards the right, it was made to transfix, a little above the apex, the triangular piece formed out for the septum of the nose; and being still further pressed on, the needle made its appearance at the same distance from the right ala, and at the same height from its under margin, as where it entered on the left side; thus, when the transfixion of the several parts was accomplished, the needle lay on a perfectly horizontal plane. It must be remembered here that the points of entrance and exit of the needle were so planned at such a height above the low margins of the alæ, that when it traversed the central triangular piece, it held it well up to the cut surface of the vomer in front, so as to establish a permanent union. By direction, then, the cheeks were well forced forwards, and I threw a thick silken waxed ligature across the needle, in the figure of eight form. From the decision with which I had the cheeks held forward the parts glided gently together towards the centre of the needle, to which parts they were compressed, and the ligature was made steadily to follow them, *not to drag them together*, but simply to prevent their retraction and separation—there again receding. The cord was thrown several times from side to side, so as to perfect the twisted suture. It was very apparent now how admirably the septum had been formed. The second needle was next introduced, fully three-quarters of an inch away from the edge of the cut surface, and made to enter at the junction of the red border of the lip and integument on the left side; with a steady pressure it was forced from left to right, deep through the lip, cautiously in a horizontal line, so as to strike the right or opposite half, critically in the same position, so as to make its appearance at the same distance from the red border, and guard against any unevenness or notch below. A strong waxed silk ligature was also thrown, in the figure of eight form, round this needle, the same precautions as taken with the first needle being adopted, of forcing forwards the soft parts to absolute contact, before the cord was cast around; several turns of it were made in the evenest way, and the adjustment could not be more perfect. Owing to the elliptical incisions created by the curved scissors, and the remote ends of the double ellipsis being brought together, a slight oval space intervened between the upper and lower needles; in the upper part of this the apex of the central fleshy piece forming the septum lay. I introduced a third needle, finer than the other two, midway between both, on a line with the other two, at the point of entrance and exit and depth throughout from the surface. A separate ligature was likewise thrown around it, in the figure of eight form, and the same pressure from behind forwards afforded to the soft parts, as in their application. When the ligature was applied the concave margins entirely disappeared; surface lay to surface in a vertical line, and, as a consequence, the inferior margin of the lip was rendered slightly prominent, the object aimed at by such a division and adaptation of curves. The ends of the needles were next clipped off with an ordinary wire nippers; thus the needles were inserted, thus the ligatures were applied, each needle having its separate cord. That reprehensible practice of passing the ligature from one needle to the next, and so on, I need scarcely say was not employed by me. It is a proceeding which warrants my deepest censure. Such a mode of application tends to approximate the needles, and so, in proportion to the tension employed, to shorten the cicatrix, or, in other words, to contract it in its vertical axis, and increase the predisposition to notching at the red border; whereas the separate ligature thrown around each needle, flatly and evenly laid on, tends to press gently down the lip, and lengthen—increase its vertical measurement, and likewise to assist the evenly-adjusted curvilinear incisions in perfecting the union, and rendering prominent the inferior part of the wound and red border of the lip. During all this manipulation the cheeks were pressed steadily forwards, so as effectually to guard against any sudden jerk or additional violence, upon the constrained parts. Long since, in those cases, I have put aside the use of spring apparatus, from the

difficulties I encountered in their steady application and adjustment to the heads of infants—owing to the facility with which they were put astray, and to their likelihood to do mischief; again, from the readiness with which they went out of order, and so lost their charm. The method which I have been adopting latterly, and which I find perfectly efficient in taking the place of the assistant's hands, in holding the parts forward, relaxing the cheeks, and grip upon the needles, is the application of adhesive straps, cut, figured, and applied after this manner:—Two pieces should be cut about an inch and a half wide, and each long enough to reach from the summit of the forehead to beneath the chin, taking a semicircular course behind the cheek. The edge of the strap, which is to be anterior when applied, should be cut in a semicircular shape to the extent of the cheek, the centre or deepest portion being somewhat more than half an inch. One end of the strap should be fastened on the upper and fore part of the forehead, then brought in a curved manner outside or behind the cheek, and then carried, with moderate traction, forwards beneath the chin. The second strap should be applied, after a similar fashion, on the opposite side. If the plaster be good and adhesive, it never slips, the broad ends take a firm unyielding grip, and the straight edge of the plaster behind, made tense by the traction forwards, offers a direct opposition to the recession of the cheek, while the curved anterior margin permits the strap thus put on to lie more evenly, and so accommodate itself to the prominence of the cheek thus forced forwards. In the case under consideration, and in which the strain upon the adjusted parts was extreme, this practice fulfilled every indication that the most perfect appliance could bestow. The operation and dressing being now finished, I was now satisfied with the appearance of the child. Not a drop of blood oozed from the parts, and he was well resuscitated by a few tea-spoonfuls of wine and water.

9 p. m.—The child was wonderfully well; he had taken milk freely several times. In five hours after the operation, the child being quite clear from the effect of the chloroform, and having perfectly recovered from the shock, as evidenced by reaction, I had, as is my usual custom, small doses of laudanum, at intervals of three or four hours, administered, so as partially to narcotize the child. Previous to each additional dose the infant was freely fed, and quickly calmed again to repose. On the morning following the operation, February the 1st, nothing could be more satisfactory than the condition of the little patient; he had calm, quiet, steady respiration, an excellent pulse, well arterialized blood; he had consumed a large quantity of milk; pain was averted, and undisturbed sleep was enjoyed, from the sedative influence of the narcotic. Here, again, I would wish to urge the propriety of administering opium to children after painful and serious operations. *Children bear opium in proportion to their years, I would say, even better than adults.*

I fear this axiom will startle some; but, as all other propositions in these reports, I offer it, too, with all truthfulness as the result of my own experience. In my Memoirs on Hare-lip the same mode of procedure has been inculcated—advocated; and in numbers of cases occurring in my practice, since the last was published, its superiority has been confirmed; and so likewise after the embarrassing operation that I am describing. Everything went on most admirably, until the evening of the third day, when erysipelas attacked the parts. The child was listless for some hours before, and refused his food; soon the blush of inflammation showed itself about the wound, external to the needles; the nose was swelled; the eyes were puffed. At once a brisk mercurial aperient was given; wine with water was occasionally taken. On the following morning (February 4th), and the fourth day after operation, the erysipelas had made considerable progress; the child had scarcely any sleep, he was tossing and restless all the night; the lip and cheeks were more swollen, more brilliant in colour; the eyes were more shut up; the forehead was involved slightly—oedematous, painful to the touch, and discoloured; pulse small, feeble. All the swollen parts and parts engaged were now smeared with the strong mercurial ointment—a drachm being applied morning, mid-day, and at night; and sherry wine was

ordered in what may be considered large doses for an infant at this tender age; four ounces were consumed in the twelve hours; this treatment was continued steadily—perseveringly, for two days (February 6th), before the inflammation began to subside. Then the application of the mercurial ointment was suspended, and all on, removed with sponge and warm water. Still the wine was continued, and strong chicken broth, which the child partook most freely of, as well as of milk in abundance.

[On the seventh morning after the operation the needles were removed with the greatest caution. Union was then effected throughout; the septal piece was perfect, adherent to the bone, the angle of it was evenly caught between the lateral portions of the lip above and united beautifully there, while the remaining portion of the lip was united to the lowest point of its red border; straps of adhesive plaster were kept applied for about ten days, so as to sustain the parts and maintain forwards, with steady support, the cheeks; at the end of ten days, “at a little distance, it was almost impossible to discover that the little fellow had been subjected to operation at all.”]

On examining the mouth, nothing could be better than the way in which the partially preserved central piece lay; it shut up all the hideous gap between the maxillæ, and its lateral edges lay in contact with, and united immovably to each, whilst its lower edge ranged with the alveolar arch and perfected the palate in front, at the same time that its anterior surface sustained the united lip in its now full integrity and proportion.

[One great secret of the success in this case was, that by the exhibition of opium there was never any dragging or tension on the needles, from the crying or restlessness of the child.]—*Dublin Quarterly Journal*, May 6, 1863, p. 292.

36.—ON HARE-LIP.

By THOMAS BRYANT, Esq., Assistant Surgeon to Guy's Hospital.

Hare-lip is always found in the upper lip, and is most frequent on the left side of the body; 63 per cent. of the cases taking place on the left side, and 36 per cent. on the right.

It is more common in the male than in the female sex, in the proportion of 70 per cent. of the former to 30 per cent. of the latter.

In the simple uncomplicated cases, the proportion is less marked: but as the cases become more complicated, the greater frequency of its occurrence in the male sex becomes more apparent; the proportion between the sexes being 50 per cent. and 20 per cent. It would also appear to be a rare thing to find a double hare-lip in a female child.

Treatment.—There neither is nor can be any difference of opinion between surgeons as to the expediency of affording surgical relief in the cases of deformity which we are now considering; although there is still great uncertainty and diversity of opinion between them as to the period at which it is the most advisable to submit the child to an operation. Some surgeons assert that operative interference is most successfully carried out at the very earliest period of the child's existence; and that the earlier the operation is performed, the greater are the chances of a complete success. On the other hand, surgeons of equal eminence maintain that the practice just laid down is fraught with danger, and that the correct practice is to wait till the child's powers are fully established; and that one or even two years should be allowed to pass before any attempt to repair the deficiency should be made. Between these two extremes lie the opinions of many men; and it is, therefore, with a view of obtaining some definite data upon which a positive opinion can be based, that I will now lay before you the conclusion to which I have been led.

But, before doing so, allow me to allude with all deference to the uncertain grounds upon which surgeons have been in the habit of founding positive opinions; for it is too true that these opinions are, as a rule, based only upon

impressions; although it may be that these impressions are the result of extensive and perhaps most conscientious experience. Still I feel that I may appeal with confidence to all who hear me, when I assert that there are few things more fallacious than the general impressions which experience affords, however great may have been the field from which they have been gleaned; and that true impressions can only be gained from positive and definite materials.

I am unable to direct you to any work or even journal in which definite data have been recorded, from which just conclusions can be drawn as to the period at which it is the most advisable to operate in cases of hare-lip, unless I were to mention my own previous contributions to this subject, which will be found in the third part of my Clinical Surgery.

It is, therefore, with some confidence that I am now able to add something to our stock of knowledge which may prove of use in guiding us to a correct decision. If I lay myself open to the charge of saying that surgeons have hitherto formed their opinions upon indistinct and indefinite data, I can only justify myself by pleading that the grounds upon which the opinions have been based have not been published; and that, therefore, I may be forgiven for doubting their existence.

The facts which I now adduce may form but a nucleus round which others may hereafter collect; and the conclusions I now give may have to be confirmed or corrected by future observers.

Analysis of Cases.—Four cases were operated on within the first two weeks; one on the fifth day, and two on the eleventh day, one of which proved fatal.

Eight cases were between four and five weeks of age; in two of these, the parts subsequently gave way, although the cases in the end turned out well.

Ten cases were operated on between the sixth and eleventh weeks, with success.

Fifteen cases were treated between the third and sixth month, with only one failure.

Six cases were operated on between the sixth and twelfth month, with a good result; and

Fifteen were also successfully treated after the first year.

From these facts it will appear that, during the first six weeks of life, the operation for hare-lip is by no means so successful as to warrant its general performance unless an absolute necessity compels. Out of the twelve cases, one died; and in two the wound subsequently sloughed, although in both a good recovery was finally secured. At a later period of life, a successful issue was recorded in all.

At what period of the infant's life, then, should the operation for hare-lip be generally performed? In order that a satisfactory answer should be given to this question, it is necessary to consider the purposes for which the operation may be required; and they may be divided into two classes.

Firstly, the operation may be called for to preserve life; the imperfection of the mouth forming an insuperable difficulty to the child's sucking.

Secondly, it may be called for simply as an operation of expediency, to improve appearances and remove defects.

When demanded for the satisfaction of the first purpose—namely, to preserve life—there is no question of period which the surgeon has to decide. The operation must be undertaken at all hazards; but the successful termination of the case will be uncertain. For this purpose I have performed the operation on the fifth day with complete success, and other surgeons have been equally successful, even at a much earlier period; but, under these conditions, the necessity of the operation overcomes all other questions, and the surgeon has no option but to do his best.

In the second and more numerous class of cases, however, the time for operation rests entirely on the surgeon's will; and it only remains for us to decide from the records of positive experience, the period of life at which the greatest success can be anticipated.

Judging from the materials which I have just laid before you, it would

appear that the operation when performed at any period of life after the sixth week is likely to be followed by a successful result; I would give the preference, however, to about the third month of life, the vital powers of the child having by that time become fairly established, and well able to resist the tax upon their strength which is necessarily occasioned by any operation. At an earlier date—that is, during the first few weeks of life—the operation should be condemned; unless, as it has been previously explained, the existence of the child appear imperilled.

The Operation.—It will be hardly profitable to any of us if I were to take up your time by recapitulating all the varieties of operation which have been suggested by various surgeons for the relief of the deformity now under consideration; and I propose, therefore, to confine my remarks simply to what I have observed and practised, and to recommend what appears to be the best means out of the many which have received attention.

In simple cases, there are but two main objects which the surgeon has in view—to pare the edges of the fissure, and to adapt them so as to render the deformity as slight as possible.

I would give the preference to the scalpel for the performance of the first stage; for with such an instrument a cleaner section of the tissues is made than when scissors are employed; and this cleanness of the incision is a point of primary importance.

The form of section which is to be recommended is variously estimated by different surgeons. Some are content with a clean straight section of the lip's margin, being so satisfied with obtaining simple union of the separated parts, as not to care about making an attempt to supply the deficiency of tissue which is invariably present at the margin of the lips. Other surgeons recommend that the line of incision should be curved inwards, so that the lower margin of the lips, when brought into position, will be made to project downwards, and thus tend to correct the evil which has been just alluded to. But I am disposed to give the preference to the plan of operation which I believe was originally suggested by Malgaigne, as by it the labial notch is almost to a certainty done away with, and the deformity most completely remedied. It consists simply in paring the edges of the wound from above downwards, leaving the inverted flap adherent at its labial border. When this is done, and the upper edges of the divided lips have been brought together, the lower flaps may be connected by a fine suture; and, if proved to be too long, they may be curtailed; sufficient material being left to fill in the gap which is too often the result of the other forms of operation. In my hands, this plan of operation has proved eminently successful, and it only requires in its application a little nicety in the adjustment of the parts.

An important preliminary point, however, demands attention, as the success of the case rests materially upon its due performance; for, however well the marginal incisions may be executed, unless the lip have been rendered readily movable upon its labial attachments, a failure to the operation must be expected. This freedom of movement is, however, readily secured by making a free section of the mucous membrane of the lip from its osseous connexions. When this is done, the whole lip can be readily raised from its position, and all chances of tension are completely taken away.

The fear of removing too much of the lip's margin is one which is most certainly groundless, the usual fault of operating surgeons lying the other way; for the labial tissues are very extensible, and a free section of the parts is to be preferred.

The *second step* of the operation remains for us to describe; its object being to bring the edges of the wound together, and to keep them there. This end is most readily and efficiently carried out by means of the interrupted suture. Silk or wire may be selected according to the fancy of the operator, one exciting as much or as little irritation as the other. The interrupted suture is to be preferred to the uninterrupted, as it is more readily removed.

The sutures should be inserted from a quarter to half an inch from the wound's margin, and carried obliquely through the lip, to the line which is

bounded by the mucous membrane, but not through it, and then introduced at a like spot on the opposite side, and firmly tied. A fine suture at the labial margin should also be applied, in order to maintain as accurately as possible the line of lip.

All bleeding is generally at once arrested when the wound's margins are brought into contact; but, if it be troublesome, one of the sutures may be made to perforate the bleeding vessel.

A little elastic collodion may be subsequently painted over the part, to prevent friction; but, as a rule, the practice of leaving the part open proves equally satisfactory. The employment of pins in simple cases may certainly be looked upon as unnecessary, as the simple means which have been described are amply sufficient.

In operating, therefore, upon uncomplicated cases of hare-lip, the following points appear the most important.

First, to separate the lip freely from its gummy attachments; *secondly*, to make a free section of its edges, according to the plan previously laid down; and *thirdly*, to bring the edges accurately together by fine interrupted sutures, introduced at a distance from the wound's margin, and deeply placed. If these points are observed, and the child is neither too young nor too sickly, a successful termination to the case may with some confidence be predicted.

Complicated cases of hare-lip.—The remarks which I have just concluded, concerning simple and uncomplicated hare-lip, are equally applicable to other cases of a more complicated nature; but there is a point of practice in *double* hare-lip which deserves a few moments' attention, as there is still a diversity of practice in such cases which, I confess, appears to me sometimes singular. Some surgeons invariably operate only upon one side at a time, fancying that a greater success follows such a line of practice than when both sides are treated at one operation. From what has passed under my observation, I cannot see any reason why both sides should not be simultaneously treated; but, on the other hand, believe that advantages are obtained by such a proceeding, which are not secured by the more timid and prolonged process. In the six examples of double hare-lip which I have tabulated, primary success followed in each instance; and in the cases which fell into my own charge, I had no reason to believe that the operation would have succeeded better if a different practice had been followed. In one case of a boy aged nine weeks, I employed a pin in order that the centre bit should be well held down to the lateral portions; and good success followed the attempt. In the second case, of a boy aged one month, I operated after the plan which I have previously given; but I preserved only the lateral flaps of the outer portions, joining these in the centre beneath the central piece. Primary union followed the operation, and a recovery in which the deformity was but little marked.

In no instance have I witnessed any evils resulting from the practice which I have just laid down; and I am at a loss to understand the principle upon which surgeons still adhere to the older practice of carrying out a double and separate operation.—*British Medical Journal*, April 4, 1863, p. 340.

37.—A CASE OF INGUINAL HERNIA TREATED SUCCESSFULLY BY PROF. CHISHOLM'S METHOD.

By JAMES J. DICKINSON, Esq., Assistant Surgeon, Bengal Medical Service.

[Prof. Chisholm's radical method of treating hernia is simpler than Wood's or Wutzer's, and is different in principle. The latter prevent the return of the hernia by filling up the canal with scrotal substance; the former simply by closely approximating the two pillars of the ring by means of silver wire, which remains permanently. It is a question, which only experience can decide, whether or not the cure is permanent. If this turns out to be the

case, the operation will, on account of its simplicity, and the absence of all complicated apparatus, prove one of great value. The patient in this case was a Bhelstee, aged thirty.]

On examining him, I found he had a large inguinal hernia of the right side, which completely filled the scrotum. With gentle pressure the whole of the gut could be easily returned; and on pushing the flabby scrotum up before the forefinger, it could be passed through the tendinous aperture, more than an inch in diameter, into the abdomen, and the pillars of the external ring could be distinctly felt. The man himself was a spare man, though in good condition; and I mention the fact because I am of opinion that *pari passu* with stoutness, so will the difficulty of the operation be enhanced, and so will needles of various sizes and curves be required.

On the 27th of May I performed the operation, having on the previous day given him a dose of castor oil. After the case had been carefully examined by my friends, Assistant-Surgeon Jackson, of H. M. 13th Light Infantry, and Dr. Caird, of the Camel Corps, by both of whom I was ably assisted, I proceeded to operate, the patient being under the influence of chloroform. The mode of operating is as follows: "The scrotum having been invaginated upon the finger, as the only mode of guiding the needle in its passage, a long, strong curved needle, fixed firmly in a handle and armed with silver wire, guided by the finger, transfixes the scrotum at the apex of the invaginated portion, passes through the internal column, and appears through the skin of the abdomen, when one end of the wire is drawn out. The point of the needle is then drawn backwards, and disappears again in the canal. Its direction is then changed. Whilst still embedded in the scrotum and guided upon the finger, its point is made to traverse the external column of the ring near Poupart's ligament, lifting the skin of the abdomen. By gliding the skin upon the needle, the point appears through the small puncture made by the first passage of the needle, when the other end of the wire is seized, and the needle is unarmed and withdrawn through the scrotum. The finger is now removed from the canal, and the two ends of the wire being drawn upon the loop, it dissects the cellular tissue up to the columns, which it hugs closely. By twisting the ends of the wire the columns are felt approaching, until they are brought into such close apposition as to allow nothing to pass between them; the spermatic cord in its exit filling up all the available space remaining of the ring. When the ring is felt closed, the twisted wire is drawn firmly outwards, and clipped off as close as possible to the skin, so that when the traction on the skin of the abdomen is removed, the gliding back of the integuments to their normal positions conceals completely the ends of the small loop of silver wire." This is the description of the operation as given by Prof. Chisholm. The operation which I performed was, but with one slight modification, precisely similar. Those who witnessed the operation were much struck, on passing their forefingers up the canal, to find how very distinctly the pillars could be felt approximating as the wire was being tightened; and when it was tied, and the ends cut off, a perfect plug could be felt, presenting an impassable barrier to the egress of any portion of gut.

The progress of the case was everything that could be desired. For the first two days there was slight pain over the abdomen, which was subdued by small doses of opium; and there was also a good deal of thickening of the cord, which subsided after a time. The small wounds healed slowly; nor need this surprise us when we remember that the thermometer stood at 105° in the house.

On the thirteenth day after the operation he was able to rise from his bed and obey the calls of nature; and on the twenty-fifth day he walked from the hospital to my house and back again, a distance of a mile and a quarter, without suffering much fatigue. On the 20th of June (twenty-four days after the operation) he was discharged, being at that time able to draw as much water from the well as he required for his own use.

Remarks.—The operation as performed by me differed in one point from Prof. Chisholm's—viz., that instead of puncturing the scrotum at once with

the needle, I made a slight incision with a scalpel through the fascia of the scrotum, and then passed the needle in. This suggestion emanated from my friend Dr. Jackson, who believed that it would render the performance of the operation less obscure, an opinion in which I agree. The only difficulty in the operation is, after having secured the inner pillar and withdrawn the needle, to secure the outer pillar, which requires a peculiar manœuvre. I think it should be secured a line or two lower than recommended by Prof. Chisholm, thereby obtaining a more perfect approximation of the parts by reason of the greater purchase that is acquired.

The needle I use is six inches long, and firmly fixed into a handle, in appearance resembling a common suture needle, having, however, on its convex surface a groove sufficiently deep for the silver wire to be perfectly embedded in, and thus avoid a resisting surface, which would be the case were this groove not there. I would recommend intending operators to have a set of four needles, similar to those my friend, Dr. Bourne, is having constructed for me, and from whose firm (Messrs. Bathgate & Co.) they are obtainable. I have purposely avoided commenting on the class of people for whom I think this operation applicable, as from a solitary though successful case it would be all but impossible to draw any inferences, and were we to do so they could only be regarded in the light of postulates.

In conclusion, the question will be naturally asked, Does this operation of Professor Chisholm's present greater advantages than either Wutzer's or Wood's? My answer is, Yes, it does. And I think a careful perusal of the three methods will satisfy practical surgeons of the truth of my assertion. First, it is superior to Wutzer's on account of its greater simplicity by reason of the absence of all complicated apparatus (no mean point to be borne in mind by military surgeons stationed hundreds of miles away from any city), as well as in the procedure itself; secondly, on account of the permanency of the plug, due to the presence of the silver wire always remaining there; and thirdly, no truss being required in the after-treatment. With reference to Wood's operation, of which it may really be considered a modification, I think, hereafter, when we have more data to go upon, that if it does not altogether supersede it, it will at least be found to have a sufficient number of advocates to entitle it to rank amongst the legitimate operations of the day.—*Lancet*, Aug. 15, 1863, p. 186.

38.—ON THE USE OF THE CLAMP IN THE TREATMENT OF HÆMORRHOIDS AND PROLAPSUS.

By HENRY SMITH, Esq., Assistant Surgeon to King's College Hospital.

In the third edition of my work on the Rectum I called attention to an improved clamp which I had been using in the removal of hemorrhoidal tumours; and in the *Lancet* for October 4th, 1862, is a description with a drawing of the instrument further modified. The instrument is much the same as regards shape as that originally recommended by Mr. Curling; but the edges of the blades, instead of being serrated, fit into one another by means of a groove and raised surface; and instead of being fixed by a catch, the handles are perforated by a light screw, so that the pressure can both be put on and taken off the tumour, to be removed in such a gradual manner that any bleeding point may be readily appreciated and treated. The operation consists in seizing the tumour with the blades of the clamp or forceps, and removing it with a knife or sharp scissors; the raw surface is then wiped dry and thoroughly cauterized, either by nitric acid or the hot iron, according to circumstances; the parts are well oiled, and the affair is finished. The disease is removed at once, and the patient is not subjected to the irritation and danger of a ligature strangulating several portions of mucous membrane for a week or more. A very extensive experience of this method of treatment has convinced me so entirely of its superiority over every other plan, that I have thought it right to detail a few of the most

severe cases which I have met with during the last year, so that those surgeons who take the trouble to look into the matter may judge for themselves about it. I am the more anxious about this as there is a feeling of prejudice against the treatment amongst those who have not witnessed it. On the other hand, I believe all those who have seen the operation as I adopt it in King's College Hospital and in my private practice have been much astonished and pleased with the results. My own impression is, that the ligature may be almost entirely done away with for hæmorrhoids and prolapsus; although my own practice is somewhat contrary to my conviction, as I have latterly employed the ligature in a considerable proportion of the cases which have occurred to me. The reason of this is, that I have been testing with great care the comparative value of the two modes of treatment, and have been selecting cases for each; and, as before stated, the conclusion is forced upon me that the advantages of the plan by the clamp are too marked to be lost sight of. The dangers of the ligature are entirely avoided; the subsequent irritation is lessened: the patient is not confined to his bed more than one-third or one-half the time necessary for the separation of the ligature; and the convalescence is much shorter. I must confess that the operation itself is tedious and troublesome, and that if great care be not employed the disease may be only half cured. I have reason to believe that in two of the cases operated upon by me during the last year a partial failure took place, from causes which I could not well control; but if great care be taken to apply the details of the treatment, the cure is as permanent and satisfactory as that resulting from the ligature.

I shall now relate a few cases to illustrate my remarks, and shall first mention the particulars of a case, not occurring in my own practice, but where I assisted that most able surgeon, Dr. Wiblin, of Southampton. This gentleman had seen me operate in the hospital, and he was so struck with the case that he determined to adopt the plan on the first opportunity; and he kindly requested my opinion on the case of Captain —, aged forty, who had been suffering in the most miserable manner from bleeding and protrusion of the rectum for sixteen years. He commanded one of the large mail steamers, and his duties were rendered most arduous and distressing by the copious hæmorrhage which took place while at sea. When Dr. Wiblin and I saw him in January he had just returned from a voyage, and was in a most wretched plight. There was a large mass protruding from the rectum, a portion of which consisted of two isolated tumours or prolapsed portions of membrane of great size, and always outside the sphincter; and when the least straining effort was made, two other tumours came down; and attached to these were processes of altered membrane, looking like polypi. In addition to all this, the integument around the anus was much diseased and thickened.

I strongly urged Dr. Wiblin to use the clamp and actual cautery, and I assisted him in the operation on February 7th. The four distinct masses of mucous membrane were severally well secured by the screw clamp; and when the free portions were cut away, the raw surfaces, which were of necessity very extensive, were thoroughly cauterized by the hot iron; and although the parts were unusually vascular, the hæmorrhage was completely commanded by the clamp and arrested by the cautery. The polypi and loose skin were cut away, and the operation was completed. It was of necessity very tedious, but the patient was under chloroform; in fact, the exhibition of this agent always renders such operations prolonged.

This patient made a rapid recovery. His bowels were acted upon on the fourth day, without hæmorrhage, pain, or prolapse, and within ten days he was able to walk three miles. I have seen him since, and examined him, and there is not a trace of the disease.

This was certainly the most severe case I have met with, and I am much obliged to Dr. Wiblin for so thoroughly testing the merits of the treatment. But in some respects perhaps even a more satisfactory case occurred to me about the same time in the person of a distinguished General, aged seventy-two, who was sent to me by Dr. Furnivall, and who had been troubled with

severe prolapsus for many years, especially whilst on arduous service in hot climates. The entire circumference of the mucous membrane was prolapsed to a considerable extent, and very vascular. The operation was performed on the 21st December, at ten a.m., two large segments of the prolapse being clamped and cut away, and the actual cautery being then thoroughly applied. There was no bleeding. The General kept his bed for two days. On the next day the bowels were acted upon by castor oil, without inconvenience. He was at my house on the fourth day, without a trace of the disease, and on the evening of that day he went off by the night mail to his seat, two hundred miles in the country. I saw this patient the other day. The cure is complete.

Now, so extensive was the disease in each of these cases, that in the absence of the clamp and cautery the ligature would have been necessary, and the brief period consumed in the treatment may be well contrasted with the time usually taken up in the separation of the ligature and its results.

I will now, however, briefly detail a case still more striking, to show how slight are the inconveniences of this operation, and how little confinement is necessary.

A middle-aged man came amongst the out-patients at King's College Hospital a short time since, suffering from a large prolapsus on one side of the rectum. As he lived near, and was anxious to be cured at once, I determined to operate upon him in the out-patients' room. Accordingly I applied the screw clamp, and having thoroughly compressed the tumour, cut it away with scissors, and then well cauterized its surface with nitric acid. The patient was allowed to wait some time, and then he walked home to his residence. He returned to see me at the hospital three days afterwards, there being no trace of the disease, and he was nearly well. He informed me that he lost some blood on going to his home, but since that period he had kept quiet, and had suffered very little.

I do not wish, by referring to this case, to recommend that a patient should be allowed to walk after this operation, because, undoubtedly, bleeding and other inconvenient results might occur if the patient were not very careful; but it is related to show how little formidable the proceeding is, considering its certain and excellent results.

As regards the permanency of the cure a word may be said, and this is to the effect that the good results must of necessity be as lasting as those produced by the ligature, because in each instance the disease is boldly removed—in the one case speedily; in the other, slowly. Of course great care must be taken that no portion of prolapsed membrane or hæmorrhoidal tumour be left, otherwise the relief will only be temporary, and in course of time the patient will again be troubled, and discredit will be thrown on the treatment. This objection is, however, equally valid in the case of the ligature. I have several times had to operate again on patients where the ligature had been used. Only a short time ago I used the clamp in a case where a surgeon of great repute had employed the ligature with relief for a time only; for when the patient consulted me, I found there were two large internal tumours, and a great deal of diseased and thickened skin around the anus. I operated upon this gentleman with the clamp, using nitric acid as the caustic, and cut away the thickened integument. Although this operation was a severe one, and there was more hemorrhage than usual, he was able to travel to his home—a long distance in the country—on the sixth day.

The details of the operation are very important, and, I must confess, tedious. It is necessary to get the tumour to be removed well down, and so isolated from the surrounding parts that the clamp can be thoroughly applied to its base. Again, it is very needful to see that every portion of mucous membrane is thoroughly secured before the part be cut away, as it may happen that some considerable vessel is involved in that part which is not clamped. In the only case which has given me any uneasiness, I endeavoured to secure two tumours with one clamp, the consequence being a considerable hemorrhage two hours after the operation. A small portion of the

mucous membrane escaped from the clamp after it had been divided, and I learned a lesson I shall not speedily forget.

When I first began to use this treatment, I employed nitric acid as the cauterizing agent in all cases: but in two instances it failed to stop the bleeding, and I was compelled to secure the part with a ligature. Consequently, I now only use the nitric acid in the slighter cases; but if the diseased mass be extensive, or the parts extraordinarily vascular, I employ the actual cautery, which suffices to seal up the vessels. I am inclined to think that, of the two, the cautery is followed by more suffering than when nitric acid is used. In Dr. Wiblin's patient, where a most extensive application of the hot iron was needful, the pain was great for some hours afterwards; and in a lady on whom I operated the other day, at the request of Dr. Hawksley, and where also a very extensive application of the cautery was necessary from the number and vascularity of the tumours, the suffering was very great for some hours; but the application of pounded ice to the parts gives immense relief.

I may mention, that I have made a further modification of the instrument at the suggestion of my friend, Dr. Vine, who has assisted me in several private cases, which consists in the blades of the clamp being so constructed that their inferior surface, instead of being convex, are slightly concave. This form allows an easier application of the instrument in many cases, and I find that a larger portion of the diseased tissue can be secured. It is well, of course, to be provided with a clamp of each kind; but as these instruments are somewhat expensive, I would suggest that in case the surgeon should wish to possess only one, he should have the blades made concave.—*Lancet*, Oct. 31, 1863, p. 506.

ORGANS OF URINE AND GENERATION.

39.—DESCRIPTION OF A NEW INSTRUMENT FOR THE RELIEF OF RETENTION OF URINE IN CASES OF TIGHT STRICTURE OF THE URETHRA.

By Dr. PATRICK HERON WATSON, Surgeon to the Edinburgh Royal Infirmary and Eye Infirmary.

To any one conversant with the success which has in recent times attended the efforts of surgeons to relieve retention, in cases of stricture, by the employment of the common silver catheter, a proposal to increase the armamentarium of surgery by the addition to it of a new instrument, may appear very uncalled for. No doubt, the silver catheter, varying in scale from the size of a fine knitting-wire upwards, is well suited in most cases to enable the practitioner to overcome the difficulties so far as the diminished capacity of the urethra at the seat of stricture is concerned; and when contrasted with the gum catheter affords a facility of manipulation to which the latter instrument cannot pretend. Rigidity of material is thus obviously a matter of moment, conferring as it does a command over the extremity of the instrument; so that delicacy of manipulation, combined with the requisite amount of power, is certainly attained. This rigidity in the case of the silver instrument is, however, only comparative, and becomes less and less as the size diminishes, till at length in the smallest catheter, No. 4 or No. 1 of the Edinburgh scale, the condition of flexibility is almost attained. Nos. 2, 3, and 4 are certainly less pliant, but still they are less easily introduced than the more rigid bougies of the same size which are made of solid German-silver or steel. This fact has long been recognized, and has led generally to the use of bougies of those sizes in preference to catheters in the treatment of stricture by dilatation. While the advantage to be obtained by the use of a very small instrument, which possesses as great an amount of rigidity as possible, has led, in this hospital, for many years, to the employment of a probe-pointed German-silver bougie, made in its stem of the size of No. 3, but tapering at its point to an extremity not larger than that of a common

probe. Such an instrument is certainly more easily introduced into the bladder where a tight stricture exists than even a No. 1 bougie of uniform size, the tapering point enabling the instrument to be guided through the constricted portion with precision; and thus to permit the thicker part of the stem with the greatest facility to follow upon the slender extremity. When introduced it dilates the stricture, so that a No. 2 or 3 will easily pass without experiencing any obstruction. I have therefore on many occasions found it preferable, when foiled in the first attempt to pass the small-sized catheter in cases of retention with stricture, to resort to the passage of the probe-pointed bougie as a preliminary measure, following it up with a No. 2 or 3 catheter, and thus securing the relief of the patient with less delay and with much less risk of injury to the mucous membrane of the urethra than by oft-repeated efforts with a small catheter. In such cases, too, especially when there has been much thickening in the perinæum, to secure a still greater degree of rigidity, I have found that Mr. Syme's stricture-staff, of the smallest size, was better suited to dilate the canal, as a preliminary to the introduction of the catheter, than the probe-pointed German-silver bougie. In a case of tight stricture with retention, I have very frequently, however, felt, after having introduced this probe-pointed bougie with no little difficulty, that, were it only hollow, and capable of acting as a catheter, a great deal of trouble to the practitioner and pain to the patient might be avoided.

I accordingly requested Mr. Young, the ingenious surgical-instrument maker of this city, to construct for me a probe-pointed stricture catheter of highly tempered steel, and of exactly the same dimensions as the German-silver stricture bougie in common use. This he did most successfully. The whole length of the instrument is $10\frac{1}{2}$ inches. The stem is hollow from the handle up to *a* (about an inch and a half from the point), where there is an orifice: a silver wire occupies the interior of the instrument, and occludes the eye at *a*, so as to prevent blood or mucus obstructing the channel during its introduction.

I have now used this instrument for more than a year, restricting its employment to those cases where either others or myself had previously been foiled in the introduction of a small-sized catheter, and where formerly I should have resorted to the use of the probe-pointed bougie as a pioneer to the common catheter. In every such instance I have found that the steel probe-pointed catheter was introduced with facility, and afforded the requisite relief completely,—though, of course, slowly, from the small size of the channel through which the water flowed. This instrument, I may mention, has also been employed by several friends, and in their experience has been found signally serviceable. There is but one objection to the instrument; that is the liability of steel instruments to rust; and more particularly this might be expected to hold good with respect to the channel of a steel catheter. I can only say in reply, that during the period I have employed the instrument, I have had no reason to complain of it on this score. The only precaution I have thought it necessary to employ has been to wash it after use, and then to pass the silver wire dipped in oil along the channel. Should, however, the risk of rust appear to be a serious objection to its general usefulness,—as it might in a warm climate,—then the instrument may be electro-gilt, so as thoroughly to protect the steel surface.

In introducing the catheter to relieve retention, from the position of the eye of the instrument, the operator must take care that this aperture, and not merely the point of the catheter, is lodged in the bladder; else the water will come away in a very tiny and unsatisfactory stream. By passing the finger up the rectum the position of the point of the instrument can easily be determined, and when it is once in the bladder the catheter may then with perfect safety be pushed onwards, stretching the stricture by its gradually-increasing calibre till at least an inch and a half more of the stem has passed within the canal of the urethra. If the silver wire is now withdrawn, the urine will escape in a continuous free stream; and if the patient is then placed in the erect posture or sitting upon the edge of the bed, the bladder

will gradually empty itself without the assistance of any pressure over the pubes.

The advantages to be obtained from the employment of this steel probe-pointed catheter are,

1st, That in it we have an instrument, which, being made of steel, is thoroughly rigid, and therefore under the control of the operator;

2nd, An instrument which, to relieve retention, possesses all the excellence of the smallest catheter, with, from its probe-pointed extremity, all the facility of introduction presented by the probe-pointed bougie.—*Edinburgh Medical Journal, July, 1863, p. 56.*

40.—ON CATHETERISM IN CASES OF HYPERTROPHY OF THE PROSTATE.

By HENRY THOMPSON, Esq.

The chief object we must have in view, in cases of enlarged prostate, is to relieve the distention of the bladder. For this purpose in these cases a special catheter is required; the ordinary prostatic catheter should be no less than a No. 9 or No. 10, 12, or 14 inches long from the rings to the tip, and the curved portion should comprise a fourth or a third of a circle, of which the diameter is from $4\frac{1}{2}$ to $5\frac{1}{2}$ inches. There are other modifications of the prostatic catheter ably explained by Mr. Thompson, of which, however, we cannot here give an account. The prostatic catheter may be of metal (silver) or gum-elastic; if the latter, it should be kept on a stilet more abruptly curved than when required for use, so that it may retain a sufficient curve when employed. The silver catheter is, as a rule, the best, and enables the operator to ascertain the condition of the parts with considerable accuracy; the elastic possesses this advantage, that when introduced with the stilet its curve may be increased by a partial withdrawal of the wire, so as to enable the tip to mount over a swelling at the neck of the bladder. The curve also may be modified by the form of the stilet, so as to suit any individual case; and it frequently enters the bladder when introduced without a stilet after the metal instrument has been tried unsuccessfully. Notwithstanding all this, however, the silver catheter is preferable as being more manageable; but the operator should be provided with both in case of emergencies. In introducing the catheter in these cases, the operator will accomplish his purpose by keeping the tip well in apposition with the roof of the urethra, hooking it round the pubic arch, and then gradually depressing the handle in its further progress between the patient's thighs, so as to carry the tip well over a prominence at the neck of the bladder; if the tip is allowed to pass along the floor of the urethra, it becomes entangled in the prostatic swelling at the neck of the bladder. Occasionally it is found necessary to incline the tip on its arrival at the obstruction either to the right or left, so that it may pass into the bladder, not over the eminence at its neck, but by the depression generally found at the side of the median tumour. If unfortunately false passages have been made by previous operations, the finger in the rectum can ascertain on passing the catheter by the urethra, from the small amount of tissue intervening between the two, whether the instrument has entered such a passage; if so, the catheter is to be withdrawn so as to disentangle it, and the tip elevated by the finger from the rectum, to enable it to avoid the entrance of the passage as it progresses. If this does not answer, the tip, being again withdrawn, should be kept to the right or left in the succeeding introduction, and by one side or the other it will doubtless escape entanglement. The necessity for puncture of the bladder rarely arises, and the subject is too well known to require examination here.

It frequently happens that a very large quantity of urine is found in the bladder in these cases, and serious consequences, even sudden death, have followed the abrupt evacuation of the whole. In the first instance, then, it

is advisable to draw off not more than 30 or perhaps 40 ounces, and in half an hour or so another portion, so that the bladder may gradually adapt itself to the new conditions. Subsequently the catheter must be used once, twice, or oftener in the day, as circumstances may require. It is not desirable, as a rule, to retain the instrument in the bladder, but it is advisable to do so when considerable difficulty has occurred in introducing it, and its application may be required again in a short time. If it be decided to retain it, care must be taken that the tip merely reaches, and does not project into the bladder.—*Glasgow Medical Journal*, April, 1863, p. 93.

41.—SUPERIORITY OF VULCANIZED CAOUTCHOUC OVER ANY OTHER SUBSTANCE FOR THE FABRICATION OF BOUGIES.

Professor Nelaton has recently shown the superiority of vulcanized india-rubber for catheters and bougies over the instruments in common use made of tissue coated with oil mixed with litharge. The latter are rigid, liable to give rise to false passages, cause pain, and when permanently left in the urethra, exercise a degree of pressure which may induce mortification and perforation. In a few days, moreover, they are deteriorated by humidity. Vulcanized india-rubber sounds, on the contrary, are perfectly flexible and unchangeable. They are inserted with greater ease, and cause so little distress, that they may be preserved in the urethra during a journey without inconvenience. They are not affected by moisture, and one of these instruments which remained in the urethra twelve days, in one of M. Nelaton's cases, when withdrawn presented no sign of outward injury, and was as smooth as before its introduction.—*Jour. de Méd. et Chir.—Dub. Med. Press*, June 24, 1863, p. 627.

42.—EXTRACTION OF A BOUGIE, TWELVE INCHES LONG, FROM THE BLADDER.

By WILLIAM FERGUSON, Esq., F. R. S., Professor of Surgery in King's College.

[There was a very ingenious instrument exhibited at the last Exhibition, by Charrière, of Paris, constructed for the purpose of withdrawing such an object as a bougie from the bladder. The main feature of this instrument was, that having clutched the bougie it could lay it parallel with itself, so that both might be withdrawn simultaneously.]

Since gutta-percha has come into use there are many more accidents from bougies breaking than formerly, as it is a material treacherous in the extreme.]

In my experience I have not met with any case so remarkable as the following:—S. H., Esq., aged nineteen, had been in the habit of passing a bougie for himself. On the evening of the 12th March, 1863, he allowed this instrument, which was without a head, to slip wholly into the urethra. His attempts to get it out seemed only to push it further towards the bladder; and instead of seeking assistance, he, in despair, went off to bed, where he slept soundly all night. Next day he drove six miles in a gig, and then had a strong desire to pass water. Having done so, he was called again in half an hour; and from that time until the 18th of May his sufferings were extreme. His nights were much disturbed, and during the day the call to make water came about every ten minutes. The urine was high-coloured and loaded with mucus. The straining was so severe that his eyes became bloodshot; and from being a stout able-bodied young man, he had become much exhausted and considerably emaciated. I have rarely seen any one in greater suffering from stone in the bladder.

My assistance being asked in this case, I felt doubt and hesitation on

various points. The patient gave a confused account as to the size of the instrument, and whether it was a bougie or a catheter. All that he was sure of was that it was not metallic, but flexible; that it was not of great thickness, and that the whole instrument had passed in. Looking to the circumstance that when I was consulted the instrument had been in the bladder for two months, I imagined that it must now be so coated with stone, that it would be too thick to be extracted by the urethra, particularly if it were to be withdrawn double. I therefore could not say positively whether the patient could be relieved by extraction in this way, or by the serious process of cutting into the neck of the bladder. I considered it expedient to inform my young patient and his friends on these points; and having ample permission to do as I might think best, I resolved to make, at all events, a trial to extract the instrument through the urethra, and so avoid the dangerous alternative. The process of sounding had convinced me that already the instrument had become incrustated, and I felt assured that it was bent in various directions; for whenever the sound was passed, its point came into contact with the foreign body. My impression was that possibly I might seize the object about its middle; that it might double, and not prove too large for extraction; and as for the calcareous matter, I was in hopes that from its recent deposition it might not be so thick as to cause obstruction, or that it might drop from the object as it was passing outwards from the neck of the bladder.

On the 18th of May, 1863, chloroform having been administered, and all prepared for lithotomy, I introduced a small lithotrite scoop, about the size of No. 4 bougie, and speedily seized the object between its blades. On drawing both through the neck of the bladder, I felt obstruction, but not sufficient to induce me to desist. Having reached the opening in the triangular ligament, the instrument slipped; and finding some difficulty in again fixing the blades, I tried several others, such as are in use for the extraction of small stones from the urethra, but with no better success. I again used the first instrument, and fortunately soon got a firm hold. With gentle traction I gradually withdrew the instrument and what it held, and succeeded in drawing out an entire bougie, exactly twelve inches in length, and about No. 6 diameter. To my astonishment, I found that I had caught the bougie by one end, and, in consequence, had met with less obstruction from the narrowness of the passage than if I had seized it about the middle, and brought it out double. Indeed, looking to the size of the bougie, and the manner in which it was incrustated, I think it probable that it might have been impossible to withdraw it through a urethra of the size of that with which I was dealing. A few drops of blood followed the attempts to seize the bougie as its end rested in the urethra. The object came out in a straight line; but it immediately, when the strain ceased after its emergence from the orifice in the glans, became coiled or bent.

This was doubtless the shape of the bougie as it lay in the bladder, the spaces being wider or narrower in accordance with the quantity of the fluid present. The incrustation was sufficient to give a certain amount of rigidity to the bougie, but happily not enough to prevent it stretching to a straight line as it was withdrawn. Inquiries were afterwards made about the bone or ivory head usually fitted to such instruments, when the patient stated that there had not been one. By good chance this bougie, instead of being solid, as commonly made, was hollow like a catheter, and hence was more compressible.

Thus the ordeal of lithotomy was set aside. The frequent desire to pass urine ceased forthwith, that fluid speedily became clear and healthy, and in ten days the patient was able to move about as actively as ever, and to retain his urine as in perfect health.

In the course of my practice I have not met with a case similar to this in all respects. As regards extraction it may be deemed as difficult and dangerous to deal with a portion of one inch or three inches in length as with an entire bougie; but the rarity of the one case is greater than that of the other, and the extent of twelve inches of incrustation was more likely to be a positive obstruction than a less amount. Then, beyond a doubt, the length

of the bougie, even when coiled in the bladder, was productive of far greater suffering to the patient; for, whatever the quantity of water present, the bladder would always lie in contact with the instrument at various points. I have never, except in this instance, seen the eyes bloodshot from straining in consequence of the presence of a foreign body in the bladder. I have known instances where portions of bougies have remained in the bladder for months and years without producing much irritation; and in one the distress, months after the breaking of a bougie in the viscus, was so trivial that the patient was recommended to take a trip to Madeira for the improvement of his general health and for the relief of the slight local annoyance of which he complained.

The good fortune which enabled me to seize the end of the bougie between the blades of the extracting instrument was certainly great. I need scarcely state that I consider this was mere chance. Possibly being the last part that entered the bladder, it was nearest the neck, and hence was the part first touched; but I confess I had no idea of such luck, and my impression is, that such a chance would be exceedingly rare, were cases of this kind more common than they are.

There is one feature of a positive character, however, in the operation above described, which is, indeed, the chief reason that I venture to give publicity to the case—that is, in reference to the instrument wherewith the extraction was effected. It is a lithotrite of a size so small that as yet the profession cannot be said to be familiar with it. For years back I have been using much smaller instruments than those generally made for the extraction of small stones and fragments from the bladder and urethra; and latterly Mr. Matthews, of Portugal-street, has produced these instruments in great perfection and wonderful strength, of the sizes of No. 4 bougie and upwards, the blades being so slender that they can hold between them an object of considerable size, and yet the calibre of both may not be so great as not to pass readily along the urethra. I have found such instruments of great value in dealing with fragments of stone in the bladder; and in such a case as that above related, I know of no instrument which could have done such service, for its grasp is stronger than any other that I know of, and for that reason it would hold more firmly, and be less likely to slip. In this instance the instrument did actually slip on the first clutch; but that was possibly because the blades had been but slightly fixed by a short grip. Afterwards, several others slipped, and it was on a reapplication of the same instrument that I caught the end of the offending object and held it so firmly that the extraction was most satisfactorily accomplished.—*Lancet*, Aug. 22, 1863, p. 215.

43.—OPERATION FOR THE CURE OF VARICOCELE BY WIRE LIGATURE.

Case under the care of BARNARD HOLT, Esq., Westminster Hospital.

[The patient was twenty-four years of age, and had suffered from varicocele for twelve years, and during the whole of this period he has suffered from pain in the testicle, which latterly so much increased as to compel him to abandon his work.]

Upon examination, the usual tortuous and congested condition of the veins was detected behind the testicle, which, however, could be emptied by placing him in the horizontal position; but when pressure was applied over the external abdominal ring, and the patient was desired to resume the perpendicular, the veins were more swollen than before. The vas deferens could be easily isolated.

Mr. Holt determined to tie the veins with the wire suture by the subcutaneous method; and the patient being placed under the influence of chloroform, and the vas deferens isolated, a needle, armed with the wire ligature, was passed through the scrotum behind the diseased veins, and made to perforate the scrotum on the inner side. The needle was now made to enter

at the same opening, and the wire was passed in front of the veins, and so out at the first puncture; thus no skin was included in the wire loop, but merely the veins and some areolar tissue. The wire was now twisted, and the same proceeding adopted a little lower down, by which the veins were thoroughly included in two ligatures. The wires were now shortened, the intention being to subject the veins to compression for three or four days, and then to remove them by simply untwisting them. For the next three days the patient was comfortable, and did not complain of pain. There was slight swelling, and tenderness when the part was touched, but no other pain. On the fourth day Mr. Holt intended untwisting the wires as before described; but the twisted portion was so deeply imbedded that he determined to cut both ends short and leave them as permanent compressors. The punctures healed in two days, and the wires remained, not exciting any irritation or disturbance, and the patient was able to work without inconvenience. He was detained in the hospital for a fortnight, that Mr. Holt might see whether any inconvenience was experienced; but none having occurred at the expiration of that time, he was discharged, but requested to present himself from time to time that the result might be watched. The veins between the ligatures were entirely obliterated, and the patient described himself as perfectly free from any pain in the testicle. He has presented himself occasionally as requested. The wires can be felt, but they do not occasion any inconvenience, and he has resumed his work with a perfect immunity from pain.

Mr. Holt remarked that this was a case from which probably some instruction might be derived. He stated it was not his intention, in the first instance, to have left the wires around the veins; but as there was some little difficulty in their removal, he determined to retain them, as in all probability they would not excite irritation, and they would positively prevent any recurrence of the disease. He considered it was a practice that might be repeated with advantage. The pain of the operation was merely that which resulted from the two punctures in the skin, and the patient had not otherwise suffered, as was almost always the case when any portion of the integument was subjected to pressure. The operation was in itself of the easiest possible kind to perform, and he did not consider the patient need be confined to bed. Should future cases be attended with a like favorable issue, the proceeding would become general, and the pain and time of the patients be considerably abridged, while the question of recurrence would be entirely set at rest, such an occurrence being impossible so long as the wires acted as compressors.—*Lancet*, August 15, 1863, p. 190.

44.—THE RADICAL CURE OF VARICOCELE.

By Dr. JOHN H. PACKARD, Demonstrator of Anatomy in the University of Pennsylvania.

Enlargement of the spermatic veins, if it exists to a marked degree, is an extremely annoying and troublesome affection. It is less amenable to palliative treatment than distension of the veins of the limbs, for obvious reasons, while there is not so much risk attending operations for its radical cure. I have not yet seen any statement in regard to the employment of metallic threads for this purpose, but am inclined to think that it will still further diminish the danger of such procedures. The plan which I would lay before the profession is merely a modification of that proposed by Ricord, or rather a simplification of the apparatus described by him. My experience with it in a number of cases has been so successful as to induce me to offer it for the consideration of other surgeons.

The apparatus employed by me consists of a needle, a fine annealed iron wire, and a piece of sheet-lead. The needle is rather slender, two and a half inches in length, slightly curved near the point; its eye is near the point, and it is either set in a handle or headed so as to be firmly grasped with a pair of forceps. The lead plate is about an inch and a quarter in length, by half an inch in width; it has a hole bored through it near each end.

Having isolated the swollen veins in the usual way, I pass the needle, armed with the wire, behind them, and slip it back along one end of the wire, leaving the loop. Cutting off the long end of the wire, I now arm the needle again, and pass it in the opposite direction, in front of the mass of veins, through the same openings in the skin; it is then withdrawn as before, again leaving the loop. Each pair of ends is now passed through the other loop, when the mass of veins will be enclosed between the two double wires. Now, taking the lead plate, I pass the ends through the holes in it, draw them rather tight, and gradually twist them all together over the middle of the plate.

By twisting the collected ends of the wires once or twice every half minute or so, there may be gradually effected a most forcible constriction of the diseased vessels; the twisting may be suspended when the pain caused becomes severe, or when the operator feels satisfied that the tissues must be cut by the wire if the pressure be further increased. Half-a-dozen additional turns, or more, may be daily made until the loops of wire have come together, which will be known by their looseness in the sinus formed by their passage. Now, by simply dividing them near one opening they may be drawn out by pulling on the longer end. So slight is the pain caused by this operation that I have not yet found it necessary to resort to anæsthesia for its performance. But the point I particularly wish to draw attention to is the cheapness, efficiency, and simplicity of the apparatus as compared with that of Ricord. The security given by the twisting of the ends of wire, and the power it affords of gradually tightening the loop in any case, seem to me to be among the great advantages of metallic over other sutures. —*American Medical Times*.—*Dublin Medical Press*, May 20, 1863, p. 506.

45.—ON THE USE OF TINCTURE OF IODINE IN URETHRITIS.

By M. OSCAR MAX.

Since the publication of M. Boinet's researches, tincture of iodine has been employed with much benefit in acute and chronic vaginitis, whether simple or virulent. This remedy is even preferred in Belgium to nitrate of silver, as milder in its action, and also more promptly efficacious. The physicians of Hospital Saint Pierre have, however, substituted in women, for the injections recommended by M. Boinet, another mode of treatment, which M. Oscar Max describes as follows in the *Presse Médicale Belge*:—

A small piece of cotton wool is attached to a style sufficiently slender to be admitted into the urethra, and replaces with advantage the syringe commonly used for injections. The instrument is steeped in tincture of iodine, and inserted more or less far into the duct, according to the supposed seat of the inflammation, and may even, if necessary, be introduced down to the neck of the bladder. This procedure is equally efficacious in single and in chronic urethritis.

Encouraged by the success of the method in women, and anxious to preserve also male subjects from the sufferings consequent on injections and cauterizations with nitrate of silver, M. Max resorts in men to the same system, for the purpose of curing and suddenly checking the progress of acute inflammation of the urethra.

"In imitation of the practice adopted at Hospital Saint Pierre," says he, I affix a piece of cotton wool to the extremity of a common probe, impregnate the soft, spongy texture with tincture of iodine, and gently insert it with one hand into the urethra, while with the other I keep open the lips of the meatus. The adjacent valvular folds should be carefully avoided, and the remedial agent conveyed to a depth of one inch, at least, which is quite sufficient for all practical purposes, as in the incipient stage of urethritis the inflammatory action is generally confined to the fossa navicularis. It may possibly be objected that tincture of iodine being a fluid of invariable composition, the effects of the remedy cannot be increased or diminished at will, as

those of the solution of nitrate of silver; that the treatment is the same in every instance, and that its activity cannot be modified according to the degree of severity of the disease. The objection, however, falls to the ground, when it is remembered that, according to the number of successive applications of the tincture to the surface of the skin, rubefaction, irritation, or vesication, may at will be induced, and that the surgeon is thus enabled to cause, according to circumstances, mild or powerful counter-irritation. The same remark applies to mucous membranes, with this difference—that these textures being more irritable than the skin, the same effects will follow a more superficial contact with the remedy.

Thus, M. Max inserts the probe but once in mild cases, and two, three, or even four times in more aggravated forms of urethritis. Deep or superficial modification of the condition of the diseased surface is produced, and the energy of the local medication is proportionate to the severity of the symptoms, which he conceives cannot be effected with the same accuracy when the solid lunar caustic is used. M. Max is in possession of numerous cases, which bear witness to the efficacy of tincture of iodine as a substitute for nitrate of silver. Uncomplicated urethritis, acute or chronic, but occupying the fossa navicularis, has been cured by two or three applications of tincture of iodine. A fourth recourse to the remedy has seldom been required. Simple urethritis has been suddenly checked by one, and less frequently by two, applications, but chronic urethritis usually proves more obstinate. M. Max remarks that he has resorted to the method in uncomplicated cases only. When chance is present in the duct, or when the affection assumes the granular form, it would be imprudent to rely on the virtues of the tincture.—*Jour. de Med. et Chir.—Dublin Medical Press, May 20, 1863, p. 519.*

46.—THE ENDOSCOPE, AND ITS APPLICATION TO THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE URINARY PASSAGES.

Report on M. DESORMEAUX's Ward, Hospital Neckar, Paris.

[The endoscope is not an instrument which has hitherto attracted much notice. It is, as its name implies, for the inspection of cavities inaccessible to the eye. The present article is confined to its application in cases of disease of the urethra and bladder.]

Surgeons have, for some time, turned their attention to the construction of optical appliances and reflectors, calculated to illuminate deep-seated organs, which otherwise baffle all attempts to direct investigation. The ophthalmoscope and laryngoscope, for instance, have within the last few years, given rise to active inquiry, and are daily assuming greater importance in practice. Not so the endoscope, which was exhibited by the author, at the Academy of Medicine, in 1853, under the name of *Urethroscope*. After gaining for the ingenious and learned inventor a portion of the Argenteuil prize, the instrument fell into such entire oblivion, that we have seen no one but M. Desormeaux himself use it in the hospitals; an undeserved neglect, which is much to be lamented. The endoscope is undoubtedly a useful invention, and we entertain so favourable an opinion of its utility that we cannot refrain from entering into a few descriptive particulars of the apparatus, viewed with respect to the inspection of the bladder and urethra.

It is needless to expatiate on the details of the construction, or on the manner of using the instrument, which is extremely simple.

The illuminating apparatus consists of a copper box provided with a chimney, and containing a petroleum lamp; a phial, similar to that used for the common spirit lamp, is all that is necessary; the flame heats moderately the different parts of the instrument, and affords sufficient light for all practical purposes. The light is conveyed by a series of reflectors and lenses, into a lateral metallic tube, which is continuous with the catheter. At one of the extremities of this tube, and turned inwards, is placed a mirror perforated at

its centre, where the eye of the observer is applied. The other extremity fits into the catheter introduced into the urethra.

The catheter is a straight silver tube, open at both ends, and wide at the extremity, adjusted to the illuminating apparatus, where it is slit in an extent of an inch and a half, for the introduction of metallic rods, bearing cotton, a minute blade, or a style, for the cleansing, incision, or exploration of the duct. These instruments are supplied with a flat handle, bent at right angles on the rod, which, while the shaft is in the catheter, the operator holds in his hand. The apparatus is used as follows:—The lamp is lighted and placed in its receptacle; the catheter provided at its distal extremity for the protection of the mucous membrane, with a rounded wooden bulb, supported by a conductor, is introduced into the urethra, when the mandril is withdrawn. The wide extremity of the catheter is then affixed to the illuminating apparatus, and the eye is applied to the aperture above designated. In a case of a stricture, for instance, the catheter is gently inserted as far as the obstruction, and the diseased spot being possibly more or less concealed by blood or mucus, a rod, provided with a piece of cotton-wool, is introduced through the lateral slit in the instrument, and the parts are carefully cleansed; inspection is then proceeded with, and as we have frequently ascertained from personal experience, the aspect, form, and colour of the affected region can be clearly discerned. With a style, the direction of the passage and the degree of consistency of the stricture are then examined, and if incision be deemed necessary, blades of various shapes, borne on metallic rods, are at hand, with which the required divisions may be at once performed in any given direction. The condition of the mucous membrane in front of the stricture can also be ascertained in the most satisfactory manner, by slowly and simultaneously withdrawing the instrument from the urethra, the eye remaining applied to the orifice at the extremity of the tube.

Having so far described the facilities thus afforded for the examination of the urethra, we may now touch on the practical advantages derivable from the use of the apparatus. In the first place, the urethra may be, with its assistance, inspected in the most minute manner from the meatus to the bladder, and any alteration of the mucous membrane readily detected.

In stricture especially, we have often witnessed the utility of the instrument. To say nothing of dilatation as a method of treatment, the incision of the constriction is greatly facilitated. The operator sees the parts it is his intention to divide, can follow the progress of the blade through the tissues, and watch every step of the procedure as if it were performed on the surface of the body; the exact extent of the incision may thus be perfectly regulated according to circumstances, and the surgeon experiences no dread of failure, or of untoward consequences. It is not our intention to enumerate the manifold diseases of the urethra, and to point out the peculiar advantages of the endoscope in each, but merely to state that it affords the most valuable assistance to diagnosis, and that it is as convenient for the application of the caustic holder as for the introduction of sharp instruments. Many ingenious mechanical contrivances have been invented for the purpose, but none is so perfectly appropriate as M. Desormeaux's apparatus. He merely impregates a piece of cotton-wool attached to a silver rod, with the caustic, and applies it to the seat of disease; cauterization is thus effected with the utmost ease, and may be limited to as small a space as the operator may desire, circumstances which must greatly enhance the utility of this method of treatment of strictures.

We should not omit to allude to the modification introduced in the arrangements of the apparatus, for the inspection of the mucous lining of the bladder. For this purpose, M. Desormeaux employs, instead of a straight catheter, a tube incurvated to the same degree as M. Mercier's instrument, and unprovided with any aperture at its point. The smaller branch of the curve forms with the shaft an obtuse angle, at the summit of which is accurately fitted a piece of very transparent glass. This instrument is introduced into the bladder almost as easily as the common catheter, and when it has been adapted to the illuminating apparatus, the observer can view with facility the posterior

and inferior segment of the mucous membrane, the region of the highest interest to the surgeon. The importance of such an inspection is obvious; it is needless to add that the bladder should previously be distended with an injection of clear water.

M. Desormeaux likewise resorts to the endoscope for the examination of the nares, pharynx, and rectum, and it is adapted for the inspection of all the cavities of the body, usually inaccessible to the eye. We confine our remarks on the present occasion to the explorations witnessed by ourselves in that surgeon's wards, and, in conclusion, invite the attention of our readers to a mechanical contrivance calculated to be of essential service in the diagnosis and treatment of the diseases of the urinary passages.—*Jour. de Med. et Chir.—Dublin Med. Press, April 22, 1863, p. 402.*

47.—ON THE TREATMENT OF ONANISM.

By JOHN HILTON, Esq., F. R. S., Surgeon to Guy's Hospital.

Regarding onanism and its treatment, surgeons are often consulted, and it is a very important matter. It is a habit very difficult to contend with in practice. I know of no way to prevent onanism except by freely blistering the penis, in order to make it raw and so sore that it cannot be touched without pain. This plan is sure to cure onanism. I have adopted this plan of treatment during more than twenty years. Gentlemen have come to me and said, "I have for many years suffered from this abominable, disgusting habit, and I have tried to cure myself of it, but I cannot; for my morbid inclination overcomes my disgust when awake, and I think when asleep I am sometimes pursuing it. Can you offer any suggestion?" I have said, "Paint this strong solution of iodine over the whole of the skin of the penis every night; and if that does not make the organ too sore for you to touch it, then apply in the same way a strong blistering fluid to the penis." The result of my experience in practice has been that in almost every instance the continuance of the habit has been thus entirely prevented.

Here is a case in relation to this subject. The notes are from the patient's surgeon.

"W. B., aged fifteen, is one of eight children, all of delicate constitution, and himself prone to convulsions in his infancy. After repeated exposure to cold and wet, he called upon his surgeon, Sept. 4th, 1860, complaining of pain in the sacrum and left hip and thigh. He was relieved by purgatives and salines. I saw him on Sept. 11th, with both knees flexed, and complaining of great pain in the lower part of the sacrum, with so much tenderness as to be unable to sit down. The left thigh and leg were very tender, and there was excessive tenderness of the surface all down the spine. No local indications of heat in any of these parts; bowels constipated; tongue coated. He was ordered cathartic pills, colchicum, and an aperient mixture, in strong doses; croton-oil and tartar emetic liniment to be rubbed along the dorsal and lumbar portion of the spine. Within a week there was great pain along the cervical portion of the spine, extending to the left arm. Says the motion of the shoulder is very painful; elbow free; left hand closed tightly, and any touch either of the fingers or wrist caused him great pain. Slight pressure anywhere on the spine produced great pain, according to his own statement.

"Sept. 19th. Left hand firmly closed; both thighs drawn up; knees bent, and cannot be extended; toes of left foot inverted, and whole limb very sensitive. The mouth is closed for a few minutes two or three times a day.

This went on till Oct. 3d, when a physician from London saw him. This gentleman, in consultation, thought that he recognized an important pathological state of the brain or spinal marrow, and pointed out with great precision the pathological anatomy which was sure to be found at the expected post-mortem examination. This prospect made the friends of the patient very anxious indeed.

"On October 7th he was no better; head symptoms were now added, and for a minute or two he became unconscious.

11th. No better; valerianate of zinc, with compound rhubarb pills, quinine, &c., were continued.

"19th. Consulted with the physician again; fits and trismus worse. He was ordered to have bichloride of mercury, iodide of potassium and bark."

30th. As the patient was getting worse I was requested to see him. I found him sitting in his chair, the left forearm flexed, with the left thumb turned inwards towards the palm of the hand, and the fingers flexed over it; his face flushing very readily. The skin was cool, and there was no thirst; The pulse was not quick, but the heart was very excitable; the tongue clean; the pupils dilated; skin exquisitely sensitive to the touch when attention was directed to that point, but not when the mind was diverted from it. The contraction of the limb and hand was constant, but could be overcome by persevering efforts on my part, giving way very suddenly. The spine was tender the whole of the way down. I requested that he might be denuded. The penis was very sensitive, and the skin prolonged; the genital organs were cold, but highly sensitive; the hands were cold and damp. He had insisted on sleeping by himself, and in a room to himself. The patient watched especially my examination of the genitals, and when I at that moment looked at him seriously, averted his face as if ashamed. I felt convinced that the whole of the symptoms were the result of onanism.

On October 30th I insisted upon his not sleeping alone, so that he might not be able to continue his habit unobserved, and ordered five grains of mercurial ointment to be rubbed once a day into the axilla, so as to divert his mind from the thing I had in view, and I desired that a blistering fluid might be applied to the penis every night. In about three or four days the hands relaxed and opened, the legs remaining contracted; this contraction continued during sleep. The trismus persisted, but with longer periods of muscular relaxation. The local genital irritation was kept up, small doses of morphia were given at night, and the ointment used till the 20th of November. The mouth was a little sore, having been made so by the mercury. The ointment was then omitted, but the application to the penis was maintained.

Nov. 23d. This is the surgeon's report: The "fits." &c., continued till to-day, and to-day the trismus lasted longer than at any former time. He suddenly opened his mouth, regained the use of his legs, and no relapse occurred. Subsequently a mixture of strychnia was given twice a day. I afterward received this letter respecting the case, from his surgeon:—

"My dear Sir,—Young B—is, and has been quite well; he is now in London. He was cured by the end of last November (one month from my visit). A slight gleet remained for months after; I did nothing for it but cold baths, &c. The application I painted the whole penis well with was the compound tincture of iodine, made stronger by ten or twelve grains of iodine to each ounce. It 'touched him up well' I can tell you; but I don't think the friends ever had any idea what we considered the cause of his illness."

Here is a case, then, which I have placed upon the simple anatomy of the parts—viz., that the same nerves which supply the skin supply the mucous membrane and the muscular apparatus of the penis,—and I have done so for the purpose of displaying its utility in practice. Not long after I had visited this young patient, a gentleman called upon me. When he came into my room he said, "You have performed a miracle, Sir." "A miracle!" I said, "you really take me by surprise. What do you mean?" "Why, you have cured young B—; he is quite well and at school. Dr. — said he would surely die from fits resulting from some constitutional influences inherited from his father and mother." I assured him that what I had done was no marvel; that I simply acted upon common sense, experience, and physiological deduction. With that assurance and explanation he seemed to be satisfied, and so was I—*Lancet*, August 1 1863, p. 122.

DISEASES OF THE SKIN.

48.—ON THE INFLUENCE OF THE GOUTY DIATHESIS, AND OF ALCOHOLISM IN THE PRODUCTION OF DISEASES OF THE SKIN.

By Dr. GEORGE ROSS.

The treatment of cutaneous diseases that are complicated with, or caused by, an attack of gout, must be the same as would prove beneficial for the relief of the constitutional affection. By tracing a cutaneous malady to its constitutional cause, we simplify both our diagnosis and our curative agents. The chief drugs on which we must rely are liq. potassæ and colchicum. Dr. Burgess in his edition of Cazenave, remarks that he has found great benefit from the use of colchicum in cases of psoriasis, associated with the gouty diathesis. Colchicum has been recommended by other practitioners in some cases of skin disease. The explanation of its value is the co-existence of gout or rheumatism, latent or manifest. Its sedative effects on the skin are due to its peculiar action on the gouty poison.

Liq. Potassæ is an invaluable remedy in all acute cases of skin disease. When there is a gouty complication it should never be omitted; but in other cases also, in which there is no reason to suspect a gouty predisposition, it acts with admirable effect; but it should be given in large doses, sufficiently diluted, and continued, if necessary, until the system begins to feel its debilitating effects. I am in the habit of prescribing for an adult about forty-five minims, to be administered in milk or barley water. Not only is eczema rapidly benefited by it, but the more obstinate forms of psoriasis yield to its persevering employment. After a short time the patient begins to feel weak, he loses flesh, and his face pales; but simultaneously with the effect on the system, the eruption loses its redness, and, if it be psoriasis, the scales fall off in abundance. There is a point at which it is desirable to stop the potash, and to give a tonic—quinine or arsenic, according to circumstances—when the disease will rapidly improve. *Liq. potassæ* appears to have a powerful influence over the albuminous elements of the blood, and in this way to modify the action of the skin. I must plainly state, however, that it is a debilitating remedy; it must not, therefore, be pushed too far or long. The value of *liq. potassæ* in correcting errors of digestion, and in producing alkalinity of the urine, is so obvious, that it scarcely requires to be enforced, though the fact serves to explain its benefit in gouty complications, as well as in other cutaneous affections.

Gouty patients are often liable to a persistent disease of the skin, which requires local as well as general treatment. I have no faith, however, in local treatment as curative, only as emollient. This day, a lady, who has long been suffering severely from gout, showed me her arms, shoulders, and chest, which were covered with lichen; many of the papules had been scratched, and exhibited the usual bloody points, an evidence of the uneasiness they had given, and the rough treatment to which they had been subjected. This is, however, a chronic complaint; the lady has been liable to it for many years, and suffers exacerbations when her general health is disturbed.

When lichen, eczema, or psoriasis persists after relief of the gout, the general health should be carefully sustained, and such local treatment resorted to as the particular condition of the patient may indicate. In chronic eczema and psoriasis, the internal administration of tincture of cantharides is frequently useful. It stimulates both skin and kidneys, and gives a healthy tone to the diseased parts. Its administration, however, should be carefully watched, so that no unpleasant effects may be produced. In the squamous diseases the warm bath is very beneficial; but I cannot say that I have found cases of lichen in debilitated subjects advantaged by it. On the contrary, I have noticed, in some cases, a fresh crop of papules break out after each warm bath. If itching be troublesome, an alkaline wash, combined with

some sedative, as hydrocyanic acid, opium, conium, or belladonna, will give ease. Hardly anything answers better than cold aspersion when heat and irritation are excessive, as in severe cases of eczema. No fixed rule can, however, be laid down in these matters, for some patients will express themselves comforted by an application which others cannot endure. Sometime since a lady consulted me for a pustular eruption on the skin—small boils, in short—and she told me that she had previously seen an eminent surgeon, who had placed her under the cold water treatment. On removing the oiled silk, the lint steamed with hot vapor; and on lifting the lint, the one boil which the treatment was intended to cure had been multiplied into a dozen;—all the products of a protracted steaming of an irritable skin. She was then put under a genuine cold water treatment by occasional affusion, and all the pustules rapidly healed. This case is adverted to to show how easily the skin may be influenced even by so simple an element as water.

Tar Ointment is an admirable local application in psoriasis; it quickly removes the scales and reduces the skin to its natural colour. It sometimes irritates the surface to which it is applied; and induces a pustular eruption; this, however, disappears so soon as it is deemed expedient to discontinue the ointment. I have found this ointment act best after a course of internal medicine, whether potash or arsenic. Alone it cannot be depended on; and the relief it gives is only temporary. The iodide of sulphur ointment is also beneficial in similar cases. As it is not my intention, however, to dilate upon the detailed treatment of these cases apart from their connection with gout, I shall say no more on this topic.

Alcoholism.—The use of alcoholic drinks induces various diseases of the skin. It is well known that different alcohols act upon the system in different modes, and influence particular organs each after its own tendency—gin affecting the liver and kidneys, brandy stimulating the heart and blood-vessels; rum, the brain and nerve tissue; malt liquors, increasing the deposition of fat; some alcohols augmenting, as Dr. Edward Smith has shown, the expiration of carbonic acid, and others diminishing it. Similar effects are observed on the skin. A gin-drinker's skin is usually pallid, dry, harsh and dusky. Two of the worst cases of psoriasis I have ever seen were in the persons of gin drinkers. The disturbance of the digestive functions incidental to spirit drinking, leads to many forms of eruptive disease, most of which are removable by abstention from the usual stimulant.

The most common and noticeable result of alcoholism is *acne rosacea*, a red, swollen tuberculated state of the nose and face. No doubt this state is chiefly induced by protracted stimulation and distension of the capillary vessels—a hyperæmia which leads to inflammation of the sebaceous follicles which pustulate, but do not mature readily or completely. It must be observed that this disease does not appear before the prime of life, when the capillary blood-vessels about the ala of the nose always enlarge in some degree, and the skin loses its fineness and smoothness. The worst cases of this disease that I have seen have been hereditary; that is to say, there has been a constitutional tendency to vascular engorgement of the nose; and nothing was wanted to develop the disease but an abuse of spirituous drinks. Some men could not get a confirmed acne if they were to drink specially for that purpose.

The proper treatment of these cases is, as the late Mr. Abernethy would say, "to cut off the supplies." Associated with abstinence we should resort to laxatives, and soothing local applications. A great variety of lotions and ointments has been devised for the treatment of these cases; their very number proves their comparative inutility. With proper regimen many will prove useful as emollients or stimulants, according as either may be required; without it, every local resource will fail.

If these cases are watched narrowly, it will be found that the same follicles inflame and re-inflame at successive times. If, therefore, they prove slow in their progress, and repeatedly take on the inflammatory action, I have been accustomed both in the present and in other forms of acne, to destroy the follicle by burning it with strong nitric acid. I effect the purpose in this

mode :—An incision is first made through the skin over the follicle, and then a small capillary tube previously charged with the acid is applied. The acid penetrates the follicle, but does not burn any portion of the skin beyond the circumference of the tube. If the inflamed follicle be large, a second incision may be made in it, and a second application of the acid effected. No noticeable mark is left after this little operation. It causes a certain amount of stinging, and if too many follicles are cauterised at one time, considerable irritation is experienced. It has the effect, however, ultimately of reducing the intensity of the disease. The small vascular points or naevi that not unfrequently spring up on the eyelid, are easily removed by this mode of applying the acid; and in many instances in which I have employed it, not so much blemish has been left that a magnifying glass could detect it.—*Med. Circular*, March 18, 1863, p. 144.

49.—EFFICACY OF SESQUICHLORIDE OF IRON FOR THE TREATMENT OF ULCERS ABOUT THE NAILS.

By Dr. M. BILLON, Surgeon, 19th Regt.

Dr. Caillet, of Luynes (Indre et Loire), having recently published a case in which the application of sesquichloride of iron effected a cure of the affection popularly termed the *growth of the nail into the flesh*, I take this opportunity of recording several instances of the same kind, witnessed by myself, which confirm the results obtained by M. Caillet, and may perhaps be deemed not wholly uninteresting. In 1858, Dr. Wahu, staff-physician to the army, having succeeded with this remedy in curing the painful diseases in question, I resorted to the same method, and with the greatest benefit in four cases. I may here remark that ulcers above the nails are occasionally observed among our soldiers, having escaped the attention of the medical boards, or being caused by the pressure of the boot during forced marches. Under these circumstances a *prompt* and *painless* cure may be effected by inserting the *dry* sesquichloride between the nail and the protruding flesh, and powdering the latter with the same substance. A large bandage should be applied over all, not impregnated with the *liquid* sesquichloride of iron, as recommended by Dr. Caillet, a precaution which may, however, be useful, as the folds of the band dry rapidly, and preserve their situation in a more exact manner.

On the following day, the exuberant flesh is found to have acquired the hardness of wood; suppuration speedily ceases, and a cure follows after two or three applications. This simple and mild treatment is obviously far preferable to the numerous surgical procedures hitherto recommended. In the course of four or five days, in a week at the farthest, the original pain ceases, the swelling subsides, and the patient is able to walk. Naught remains but the hardened protruding flesh, which falls away about a month after the application of the sesquichloride of iron. These are the results yielded by the method in four soldiers suffering from the growth of the nail into the flesh. They have appeared to be sufficiently remarkable to warrant the communication.—*Jour. Med. et Chir.*—*Dub. Med. Press*, May 20, 1863, p. 506.

50.—ON THE TREATMENT OF ECZEMA.

By Dr. T. MCCALL, Physician to the Dispensary for Skin Diseases, &c., Glasgow.

It appears that no treatment can be more routine and ineffectual than that frequently adopted in this country for the cure of eczema, and cases of this disease are often allowed to go on for months and years, when judiciously selected applications could have removed it in the majority of instances in as many weeks; for there are few diseases more curable than even severe forms of eczema. The means of cure, which we may divide into the constitutional

and local, must vary, however, according to the age, existing state of health and constitution of the patient, and the seat, extent, and severity of the eruption.

Let me, first of all, direct your attention to the *constitutional treatment*:—

It is necessary in this, as in all other diseases, to make a careful examination of the internal organs, and to rectify, as far as it is within the scope of medicine, any deviation from the normal standard which you may detect, and which may be keeping up or aggravating the skin affection. You will be aided in this investigation by calling to mind what I said with regard to the causes of eczema, and with regard to those states of the system which are most likely to produce, or to intensify the severity of, the eruption. In fulfilling this indication, you must be guided by broad general principles, with which, I take it for granted, you are already familiar. But I must say a few words with regard to derangements of the digestive organs, and more especially to the regulation of the bowels.

Purgatives are very useful in cases of eczema, though, with few exceptions, they must be looked upon merely in the light of adjuvants to, or fore-runners of, other treatment, and the medicine which is selected will depend upon the inclination of the practitioner, and the features which each case presents. If the tongue is loaded, the appetite bad, the liver torpid, as indicated by the light colour of the evacuations, and the bowels costive; and if, in addition, the patient is not very strong, small doses of grey powder, in combination with rhubarb and salicine or quinine, may be administered with excellent effect.

If the digestive organs are in the state just mentioned, and the patient robust, and especially if fulness in the hepatic region is complained of, occasional doses of calomel, alone or in combination with scammony, may be resorted to with advantage, as they have the effect not only of correcting the torpidity of the digestive organs, but also of "cooling the blood," as the saying is, and of diminishing the cutaneous inflammation. They may therefore be given with the latter end in view, although the liver and bowels are not in a torpid condition. A calomel purge may likewise be prescribed occasionally, if the eruption is extensive, causing much irritation, and exuding copiously; and if you fear the occurrence of any untoward symptoms from its too rapid removal, by other, and more especially by local means.

With the same object in view, and much more universally employed than calomel, though, on the whole, not so useful, small doses of sulphur, in combination with magnesia or bitartrate of potash, may be taken every evening, and as good a preparation as any is the sulphur confection (*Confectio Sulphuris*) of the Dublin Pharmacopœia, of which about a teaspoonful may be prescribed. Besides being less effectual, in my opinion, than calomel, it has this additional drawback, that the sulphur is converted into sulphuretted hydrogen, and the secretions have accordingly a very unpleasant odour. It has this advantage over calomel, however, that it is in part eliminated by the skin, and acts beneficially upon that structure, so that it possesses alterative as well as purgative properties. A more pleasant and more elegant preparation is a solution of three or four drachms of sulphate of magnesia in water, with the addition of two scruples of bicarbonate of soda, and made to effervesce by the addition of half a drachm of tartaric acid. This may be repeated every second night. If the patient is of a full habit of body, and if, in addition, he lives too freely, and cannot be prevailed upon to live sparingly, a smaller dose of sulphate of magnesia (say 3i to 3ii) may be administered twice daily, from a sixth to half a grain of tartar emetic being added to each dose, so as to deprive him in great part of his appetite for a time. In this case the solution should not be administered in effervescence, else the nauseating action of the tartar emetic may be counteracted.

The doses which I have recommended are for adults, and are merely approximative, for of course some constitutions are more susceptible of the action of purgatives than others, and care must be taken to avoid the administration of mercurials as much as possible in the case of those with whom they disagree. *Not long ago*, for instance, I gave a couple of grains of calo-

mel and three of gray powder to a little girl, which gave rise to the most profuse salivation, ulceration of the mouth, and swelling of the gums and submaxillary glands. Now, this is far more remarkable than the production of similar symptoms in the adult, even with the same dose, for as a general rule, as most of you are aware, it is much easier to salivate an adult than a child.

Having attended to the condition of the internal organs in general, and of the digestive organs in particular, the internal treatment now radiates in two directions, according as the eruption occurs in the case of those who are apparently in the most robust health, in whom the eczematous rash is called forth in virtue of some peculiar idiosyncrasy (see the causes of eczema) or of those who are scrofulous or debilitated from insufficient or unnutritious food, or from previous disease.

In the latter, nourishing food, tonics, especially those containing iron and cod-liver oil, are our sheet-anchors, and I have repeatedly cured very severe cases of eczema by the systematic administration, for a couple of months, of cod-liver oil and syrup of the iodide of iron, all other treatment of importance having been omitted. The following is a case in point, and you will probably remember that I purposely refrained from additional means of cure, in order that you might see the charming effect of the oil and iron alone:—

Lawrence D., aged about fifteen months, was brought by his mother to the dispensary, on October 9, 1862, affected with eczema impetiginodes. The eruption covered almost the whole body, with the exception of the fingers and feet, was very itchy, constantly exuding, and studded with crusts. The child was dreadfully emaciated, "just skin and bone," as the mother remarked. It could neither sleep nor eat, and was so weak that it had to be brought upon a pillow. The case looked hopeless, and, indeed, the child had been given up by the previous attendant; but acting upon what I have observed in similar cases, twenty drops of syrup of the iodide of iron in a teaspoonful of cod-liver oil were prescribed, to be repeated thrice daily, and the dose of the oil to be gradually increased up to a table-spoonful.

On October 16 the child was better. The skin being still itchy, however, a lotion of dilute hydrocyanic acid (Ed. Ph.), containing twenty minims to the ounce of water, was ordered to be used thrice daily. The oil was omitted for a week, as it produced purging. With this exception, the oil and iron were continued uninterruptedly till November 17, about five weeks after the commencement of the treatment, when the mother brought the child out of gratitude to show how well it was. There was hardly a vestige of the previous eruption, with the exception of a few dry crusts and discoloured spots on the buttocks, which were rapidly disappearing. The child appeared to be in robust health; it was quite plump, and its cheeks rosy; its skin soft and white; its appetite very good; and its sleep sound and refreshing. The medicine was to be continued for another month.

Here, then, is an instance of an infant cured of a frightful eczematous eruption, and rescued from the jaws of death by the internal administration of cod-liver oil and iron alone. In severe cases such as this, you will sometimes find it of advantage to rub the oil into the skin of the whole body two or three times a day in addition to its administration internally. Cod-liver oil is sure to do good in these cases if the stomach bears it, and especially if it is taken greedily and with relish by the patient. This is oftenest observed in children whose mother's milk is below par. When this is detected, the mother should no longer give her child the breast, and, amongst the higher classes, who can afford to have a wet nurse, a good one should at once be procured. Amongst the lower orders the child should be fed, in great part, "upon the bottle," a mode of nourishment which, though inferior to the employment of a good wet nurse, is much more desirable than the exclusive use of the deteriorated milk of the mother. Those children whose health has been deteriorated by imbibing their mother's milk too long—and instances are often met with, especially amongst the poor, of children being fed upon the breast, not for months, but for years—should be weaned without delay, and appropriate nourishing food substituted.

These children often suffer from diarrhoea, but while special remedies, guided by general principles, may be cautiously employed towards its removal, you must bear in mind that it is often the result of debility, in which case you may expect it to disappear spontaneously when the diet is altered and the general health improved.

In adults under similar circumstances, cod-liver oil and iron are almost equally serviceable, and in them, and likewise in the case of children, small quantities of stimulants may, in some cases, be superadded, though it is generally advisable to use them with caution.

Some patients, and adults oftener than infants—for the latter rarely refuse it if the system really requires it—cannot take cod-liver oil, in which case cream may be substituted, though it is not so beneficial; and, while taken with relish at first, it is more likely to derange the stomach in the long run. So that if the case is undoubtedly one which calls for the use of the oil, do not let the patient put it aside lightly, but make repeated trials of it in varying doses, and always let the bowels be carefully regulated before administering it. Sometimes it is tolerated better by swallowing a small pinch of magnesia about half an hour after the oil is taken, as was recommended lately in some of the medical journals.

When the appetite is very deficient, a pure tonic may be substituted for a ferruginous one with advantage, such as small doses of quinine and sulphuric acid in a bitter infusion; or, if the stomach is too weak even for this, you may try a little dilute sulphuric acid, which should be given in half-drachm doses twice daily in a wine-glassful of cold water, and which is usually well borne.

But, let us now take the opposite class of cases—and very common they are—in which the patients are neither ill-fed, scrofulous, nor debilitated; but, on the contrary, appear, with the exception of the eruption, to be in a good state of health. In such instances, then, what means, operating upon the system at large, are we justified in having recourse to?

Some recommend the abstraction of blood by means of the lancet, but this is hardly ever necessary; indeed, I have neither had recourse to it myself, nor seen it employed by others; for, while many severe and extensive eruptions in plethoric persons have come under my observation, I have found purgatives—especially those containing calomel—answer all the ends in view. The local abstraction of blood by leeches, cupping-glasses, or scarifications, may sometimes be resorted to with advantage, if the patches of eruption are much inflamed, and especially if the lower extremities are affected, as these parts, for reasons formerly mentioned, are more liable than others to congestion and its results. Even local bleeding may, however, be dispensed with in the majority of cases, although I am aware that this opinion will be regarded in the light of heresy by some.

The diet must be very carefully regulated, and the patient warned to eat very moderately and slowly, and to masticate his food well. A simple mixed animal and vegetable diet may be recommended, dressed dishes, pastry, pickles, spices, strong tea, and coffee, being particularly avoided. The use of wine, spirits, and malt liquors must, in general, be suspended for a time at least, though in some instances they may be taken sparingly. But you must be cautious, in the case of those who have previously been in the habit of taking them in excess, of discontinuing them all at once, and you must remember, in reference to prognosis, that the cure of an eczema is much more difficult when the patient has been much addicted to the use of stimulants.

In some cases you will find it of advantage to prescribe milk diet for a time, all animal food being avoided.

In the cases which we are now considering, and applicable, to a certain extent, to the class previously alluded to, in conjunction with the means then recommended, there are three classes of internal medicines upon which I place considerable reliance, but especially upon the first, for the removal of the eczematous eruption. These are the preparations of arsenic and sulphur and alkalies.

Of the arsenical preparations, the one which I am most in the habit of
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employing is Fowler's solution (*Liquor Arsenicalis*, Ed. Ph.), although any of the others may be selected, according to the taste of the Practitioner. I think it better, however, that the Physician should limit himself as much as possible to one preparation of arsenic, for he thus becomes more familiar with its exact mode of operation, and with the probable dose for different constitutions. An adult may commence with five minims thrice daily, and at the end of a week or so, if it agrees, the dose should be increased by a drop every second or third day, till the disease begins to yield or the medicine disagrees. I do not think it necessary to stop it if slight irritation of the eyes or puffiness of the face is induced; but if these symptoms are at all aggravated, and especially if they are accompanied by pains in the stomach and head, anorexia, and nausea, the dose should be diminished, or in some cases omitted for a few days. You must on no account stop its administration altogether, however, because these physiological effects are produced, and I thoroughly endorse the statement of Dr. Begbie, that, "in order to secure its virtues as an alterative, it will be necessary to push the medicine to the full development of the phenomena which first indicate its peculiar action on the system. Arsenic, as a remedy, is too often suspended, or altogether abandoned, at the very moment its curative powers are coming into play. The earliest manifestation of its physiological action is looked upon as its poisonous operation; the patient declares that the medicine has disagreed with him; forthwith the physician shares his fears; the prescription is changed, and another case is added to the many in which arsenic is said to have failed after a fair trial of its efficacy." It is necessary to observe, however, that the appropriate dose of Fowler's solution varies in different individuals, and that, while five minims thrice daily soon disagree with some, ten, fifteen, twenty, or even thirty may be taken by others with impunity and with benefit.

To prevent the medicine from deranging the stomach, it should always be given *immediately after food*, and in persons whose digestive organs are weak, a tonic infusion, such as the infusion of cascarrilla or gentian, forms a very good vehicle for its administration, and in some cases even a few drops of morphia may be superadded if the stomach is very easily deranged.

As the disease yields, the dose may be gradually diminished, but in no case should its use be suspended till some time after the complete removal of the eruption.

In the case of infants at the breast, it is advisable to administer the arsenic to the mother, whose milk thus furnishes not only nourishment to her babe, but likewise an antidote to its complaint. In children of one or two years, one minim may be given twice daily, and the dose gradually increased.

In some cases you may think it advisable to combine arsenic with mercury, as in Donovan's solution (solution of the hydriodate of arsenic and mercury) of which ten minims may be administered thrice daily, the dose being gradually increased. Each drachm of the solution contains about $\frac{1}{15}$ th of a grain of oxide of arsenic, $\frac{1}{4}$ th of a grain of oxide of mercury, and $\frac{1}{3}$ ths of a grain of iodine in the state of hydriodic acid in chemical combination.

And sometimes you may find it beneficial to prescribe arsenic along with iodine, and without mercury, in which case you will find Neligan's prescription, which he names the ioduretted solution of the iodide of potassium and arsenic, a very good one indeed, and one which is much used.

I very frequently make use of a private mark, known to two or three apothecaries, in prescribing arsenic, and I think with good reason. For instance, I know of a lady for whom Fowler's solution was prescribed, who, finding that she was improving under its use, increased the dose of her own accord, and thereby induced poisonous symptoms. Some time after this, she consulted Cazenave, and on her return from the Continent, she came to her family physician, and informed him that she had never been able to take arsenic since she had administered to herself the overdose. The doctor, on looking at Cazenave's note, found that she was at that very time taking arsenic without knowing it, under his orders, and with good effect. Then again, some people who consult me have already taken arsenic without bene-

fit, and either refuse to take it again, or are so sceptical of its efficacy, that they take it with great irregularity, and are convinced in their own minds that they are to derive no benefit from it—conditions which are very prejudicial to the due operation of any drug.

Very often, in these cases, the previous arsenical course had been improperly carried out, or not continued sufficiently long, and we are thus compelled either to give it in a concealed form, or to dispense with the use of a most powerful therapeutic agent.—*Medical Times and Gazette*, June 27, 1863, p. 639.

51.—ON THE TREATMENT OF ECZEMA.

By Dr. J. WALLACE, Dalston, Carlisle.

[We give one out of several cases related by Dr. Wallace, to illustrate a mode of treating eczema, which we have ourselves followed for many years, and which we know is usually most successful. The plan of treatment consists in getting the patient or nurse to keep the parts continually moist with lint saturated with a very weak alkaline lotion. The proper strength is about half a drachm of carbonate of soda to eight ounces of water. It is a *sine qua non* that the lint should never be allowed to dry, otherwise the application is worse than useless.]

Case.—A. B., a quarryman, aged thirty-four, consulted me in October, 1861, who had a skin disease of six years' duration, extending over both cheeks, of a circinate form, and communicating over the nose. Had been in two infirmaries, consulted many medical men, and had all sorts of ointments and lotions applied, which invariably made the disease no better, and oftener worse. In every other respect he was healthy. On examination, the diseased surface presented the appearance of dry, indurated, laminated scales, firmly impacted, overlaying and dovetailing with each other, so as to form a crust about one-eighth of an inch, nearly, in thickness, over both cheeks. On the nose it was thinner, and moist. Round the margins was a slight erythematous blush, the incrustated morbid epithelium flattening off to the healthy skin, and at the junction of the two a watery fluid, he said, sometimes oozed. On careful and repeated inquiry, it was found that at first there was no hard incrustation, but that a raw surface had constantly oozed watery fluid, &c.; in short, that it was eczema utterly changed in its character by the multiplicity of intended remedial applications—the last one having been mercurial ointment. He was ordered to apply the alkaline wash—a drachm of carbonate of soda to half a pint of pure water—by means of lint and a mask; the lint to be moistened three or four times daily with the lotion, and, as he was working in a quarry, to be moistened with pure water frequently from without, as he found it becoming dry. Also to take fifteen minims of the tincture of the muriate of iron, thrice daily, in water. In four days the crusts came off, and a healthy skin was partly formed over the diseased surface. It went on improving, and in three weeks the disease had vanished, and his face was, as he expressed it, "like other people's."

I put more faith in the external application than the internal alkaline remedies with arsenic, although I do not ignore the latter; but I have cured eczema, again and again, by means of the former only. What the therapeutic action of the alkaline lotion may be, is a matter of speculation. It has peculiar local sedative effects, while it is also gently stimulating; but may there not be some peculiar organic acid which by an irritating influence raises the eczematous vesicles and sustains the acrid discharge, which it neutralizes and ultimately destroys, so as to permit the speedy formation of new cuticle? Whether or not this may be the case, pathology will ultimately reveal; but, in corroboration of this idea, I have often found the alkaline lotion of great use in old constitutional and irritable ulcers, evidently from the same cause; and, indeed, the chief ingredient in every old wife's herb-salve in the country is alkaline.—*Lancet*, Aug. 29, 1863, p. 259.

52.—ON THE TREATMENT OF PSORIASIS AND LEPROSY.

By GEO. NAYLER, Esq., George Street, Hanover Square.

The *treatment* of these as well as other affections of the skin will be regulated by the age and constitution of the patient, the stage of the disease, and its complication or otherwise with any other disorder. When the inflammatory symptoms run high, which is frequently the case at the onset, they must be subdued by the ordinary means, amongst which antimony deservedly holds a high place; and if there be any tendency to gout or rheumatism, the addition of colchicum will be found useful. With the abatement of the inflammation, then those remedies which are supposed to possess a specific value in certain skin complaints may be commenced; and as it is not easy, within the limits of this paper, to enter into a detailed explanation of the mode in which, at the hospital, arsenic is given in solution, acid or alkaline, or the bichloride, &c., it will be enough to state that, for all practical purposes, their equivalents may be conveniently represented by the ordinary preparations of these medicines, as the solution of the arsenite of potass, the solution of bichloride of mercury, or the iodide of potassium, of the London Pharmacopœia. In the exhibition, however, of these powerful agents, which are always given in minute doses, care must be taken to discontinue them whenever any constitutional symptoms arise. This will not often occur when properly given, and it is seldom that we find instances of the injurious effects of arsenic amongst the large number of out-patients for whom this mineral is prescribed. Dr. Fowler, in his table of doses, considers twelve drops of the solution which bears his name as constituting an ordinary dose for an adult, or above the age of eighteen years; and, commencing with two drops for a child of two years, increases the dose by an extra drop, corresponding to every additional year, to the age of eight. This standard would appear to be too high, as far as its exhibition is concerned, in the treatment of skin diseases. Pereira states: "I have seen very minute doses of arsenic given to patients affected with leprosy, and continued for many days, without being able to detect the least indication of its action on the system, except the amelioration of the disease." Indeed, as a general rule, three minims of the solution of arsenite of potass may be said to represent the quantity for a dose that will be found most useful in psoriasis and leprosy, which, more than any other varieties of cutaneous complaints, require arsenic for their cure.

Where diseases are of a syphilitic origin, it will be advisable, in lieu of arsenic, to administer mercury with the iodide of potassium—the mist. hyd. iod. of the hospital pharmacopœia, containing for a dose the eighth of a grain of the bichloride and three grains of iodide of potassium. It should be remembered that the effects of mercury are more likely to be manifested than those of arsenic, and we should be on our guard to suspend or omit it altogether when untoward consequences are indicated. Early age is no impediment to the use of either mineral.

In the way of local treatment, some mild mercurial will answer best, or the red precipitate, to which creasote may be added. A formula much in use at the hospital is the following: Creasote, six minims; nitric oxide of mercury, ten grains; lard, one ounce. It is important to bear in mind that much difference exists between the ordinary creasote obtained from wood tar and the German creasote prepared from coal tar, which is almost identical with carbolic acid, and greatly to be preferred to any other kind. Among other applications may be named the compound mercurial ointment, consisting of six grains each of the white and red precipitate to an ounce of cerate. Or, again, the red ointment, which is thus prepared: Bisulphuret of mercury, nitric oxide of mercury, of each six grains; lard, one ounce. The patient is directed to use one of these ointments before retiring to rest, while in the day-time he sponges the surface with a lotion.

Of late, carbolic acid has been largely tried, and with considerable success. It is made as a lotion in this way:—Carbolic acid, fourteen grains;

spirits of wine, half an ounce; glycerine, one ounce; water, one pint. Another, the carbon lotion, which is of benefit when much irritation exists, is here given: Solution of carbon detergens, half an ounce; glycerine, one ounce; water, one pint.

In a large patch of lepra that has become chronic, it will sometimes be advantageous to blister the surface. The vesicating solution should be painted over the part with a camel's-hair brush, and allowed to remain untouched for two or three days.

Various other remedies are in repute among the Continental surgeons, as the decoction of dulcamara. &c. Cazenave speaks highly of the tincture of cantharides in those instances in which the disease has reappeared without evident cause. He recommends the tincture to be given at first in doses of four to five drops in water, and gradually increased if no serious symptoms arise, to twenty-five or thirty drops a day. He gives a case of lepra of eighteen years' standing that was cured by its means. The same authority commends the internal use of the ioduret of sulphur in local psoriasis, in the proportion of twelve to twenty grains to an ounce of lard. The "huile de cade," or oil of juniper tar is much in vogue in France. It may be mixed with equal parts of simple cerate, or used alone. M. Hardy, in his "*Leçons sur les Affections Cutanées*," says that it should be well rubbed into the sound portion of integument between the patches as well as into the latter.

The balsam of copuiba is also favourably mentioned by French surgeons. Hardy relates an instance of a patient with psoriasis, who at the time was also suffering from blennorrhagin, and to cure the latter complaint he ordered him to take copuiba, when, to his surprise, the cutaneous disease disappeared. —*Lancet*, Aug. 29, 1863, p. 243.

53.—ON THE TREATMENT OF CARBUNCLE.

By AUGUSTIN PRICHARD, Esq., Lecturer on Surgery in the Medical School, and Surgeon to the Bristol Royal Infirmary.

[For the last fifty years the approved treatment of carbuncle has been the crucial incision. Many other plans have been recommended, but have not survived their birth in the journals. In a great majority of cases the crucial incision is successful.]

The caustic plan has been revived, and with the sanction of well-known surgical names. Dr. Physick, of Philadelphia, seems to have been the first to bring it once more prominently before the profession; and in May, 1857, the present Mr. B. Travers published (*Lancet*, vol. i., 1857) two or three very interesting and convincing papers on the subject, and it was then that my attention was first drawn to the caustic treatment, before which time I had invariably marked a deep cross on the carbuncles, as my neighbours did. In Nov. 1856, Mr. Higginbottom published (*Lancet*, vol. ii., 1856) a short but very comprehensive little article, recommending a plan very similar to that which I am about to advocate. Mr. Syme, on the other side of the question, says, in his ordinary very distinct mode of expression, "the application of caustic is the extreme of absurdity."

I must, at this point, proclaim myself an unflinching advocate of the caustic plan of treatment in a slightly modified form, and a strenuous opponent of the crucial incision. The caustic to be preferred is the stick of *potassa fusa*, and it is to be used freely but carefully in the following way. In whatever stage the carbuncle is, the potash is to be applied and rubbed in freely in the centre, until an eschar is fully formed. In the earlier stages, if the skin is still unbroken, it must be used for several minutes, until the death of the central portion is ensured, and the size of the slough to be made varies of course according to the size of the carbuncle. In general terms, the diameter of the skin to be destroyed should be a fourth, or even a third, of the diameter of the indurated and inflamed mass. This is generally sufficient to stop the progress of the disease; but it is far better, at the

same time, to use some application of an opposite nature to the circumference, and for this purpose the nitrate of silver in substance, or in strong solution of two scruples to an ounce, may be used, according to Mr. Higginbottom's plan, or, as I prefer it, a strong solution of iodine in collodion, which has a very excellent effect in destroying the erysipelatous element of the disease. I believe that my father was the first to use a strong tincture of iodine for erysipelas of the head and face; and the *pigmentum iodinii* of the Bristol Royal Infirmary, made by the solution of forty grains of iodine in an ounce of rectified spirit, has now come into general use in such cases.

We have lately added to our Pharmacopœia here a "*Pigmentum iodinii c. collodio*," made with a scruple each of iodine and iodide of potassium to the ounce of collodion, and with very favourable results, for erysipelas, whether idiopathic or following surgical operations; with the exception that, if used on the face, the eyelids must be left intact, for it causes so much contraction of the surface, that there is danger lest the patient should not be able to shut his eyes afterwards, and this accident I have seen before now.

Mr. Higginbottom, in his paper quoted above, speaks most truly of the nitrate of silver as a preservative, and the potash as a destructive agent, and seems to have found, as I have, that this fact is not sufficiently recognised or appreciated. The contraction of the collodion film acts very beneficially on the capillaries of the skin, and the particular effect of the iodine is more continued, because of the mechanical adhesion of the collodion to the surface. With this pigment the indurated part is to be daily painted, without waiting for the first layer to come away, and the relief from it after the use of the potash is very marked. Poultices are to be avoided altogether. A dressing of the resin ointment, mixed with an additional quantity of turpentine or some camphorated spirits, is to be used daily over the surface, and in most cases no change need be made until the patient is cured.

The other points in the treatment are the greatest attention to cleanliness in the dressings, and the removal of the discharges, which are easily ensured by warm bathing and cotton wool; and the strictest care is necessary not to interfere with the slough by any dragging or cutting, so as to cause an effusion of blood.

To a carbuncle which has begun to slough by the central apertures, the caustic is to be applied in the same way, and the effect is to turn the sloughing skin into a gelatinous black mass, which melts away and is gradually removed with the dressings, the iodised collodion pigment being applied around the circumference as before. By this plan of treatment the slough certainly separates earlier than by the incision, and comes away in a half dissolved state; and the disease being checked at the margin, contraction of the entire sore goes on from the granulating process within, frequently for many days before the more solid part of the eschar has been quite thrown off from the living tissues.

The chief advantages which we claim for this plan of treatment, as contrasted with the incision, are two in number, viz., firstly and principally, the safety of the patient; and, secondly, the rapidity of the cure.

1. *The patient's safety*; the proofs of which we may conveniently examine under the same heads as those used before in describing the perils of the disease, or the causes of mortality. The risk of hemorrhage, from which some patients die, is altogether done away with. At the time of the application of the caustic, when the skin is beginning to slough, a few drops of blood escape sometimes, but they are at once dissolved by the caustic, and this is the only blood shed in the progress of the case; and, if the potash is applied still earlier in the treatment, not one drop is lost, and this is no slight advantage.

Exhaustion, as a cause of death, is rendered much less probable, partly because no blood is lost, but principally because we imitate and support nature's efforts by making an artificial slough, of comparatively small size, and the suppuration is only what is required for the separation of the dead skin and cellular membrane, the further secretion being very much lessened by the early loosening of the slough and the application of the iodine paint.

Thirdly, I believe that pyæmia or purulent infection, the most frequent

cause of death and the most hopeless complication, will not occur by this method of treating the disease.

I have already stated my conviction that pus finds its way into the open mouths of the divided vessels, and thus the system is contaminated. A cut through the hard brawny tissues must leave many vessels held open mechanically, in the midst of the suppurating and sloughing membranes in the state of all others best adapted to cause the entrance of the poison.

The only two fatal cases of carbuncle which I have been ever called to, were of this nature. Both were clergymen, middle-aged, well nourished, and in fair health at first; and in both the treatment had been by incision. In one the sloughing process was never completed; in the other the wound had even healed, and become firm, and the patient sank from numerous extensive formations of pus in the joints and cellular membrane, in various parts of the body.

A medical friend of very large experience in India, where the natives, soldiers, and others, were always under his care, and where carbuncle is a very common disease, informed me some years ago that he had long given up the incision, because of the mortality from pyæmia, and that his treatment has been much more successful since.

Seiche treated eleven patients in the ordinary way with incision, and six died; five of them from pyæmia. He treated twelve with collodion, and all recovered.

The risk of death by the extension of the inflammation to the deeper and more important structures of the body, or by tetanus, is nearly the same, whatever plan of treatment is adopted; but these dangers are not great, because of the extreme rareness of these accidental complications. Whatever difference there is, must be in favour of the caustic method, because the slough is more speedily loosened.

2. *The rapidity of the cure.*—The second advantage which I claim for the caustic, viz., shortening of the time required for the cure, although not equal in importance to the safety of the patient's life, is nevertheless no slight one. It is not quite so easily capable of absolute proof: but I have as little doubt about it as about the other.

The explanation of the case is sufficiently easy. Important time is saved at first, because the slough is formed more quickly. A cut will let free the tissues, and check the inflammation and the progress of the disease at the circumference; but whether the skin has sloughed already or not, the central part will, in almost every instance, die, and have to come away; and the special chemical effect of strong caustic alkali upon the tissues of the part, in whatever state they may be, whether living or dead, saves the patient's time in another way. As I have before noticed, the potash is a powerful solvent of the tissues: pus, blood, and the gelatine of the skin and the fat are liquefied and dissolved by it, if used in the concentrated form of potassa fusa; and the slough already formed and the skin which is about to give way become semifluid, and are washed away with the secretion; the solid elements remaining being the white and yellow fibre of the skin and areolar tissue, with pus, coagulated lymph, and some of the cellular membrane and fat which the caustic has not been able to reach.

It is important to remember that the action of the remedy upon the part to which it is applied, is chemical entirely; and that the good effect upon the rest of the disease is from the early formation of a slough which is easily broken down in its substance.

The resulting sore is undoubtedly much smaller by this treatment. After incision, the quadrants of skin partly slough, and are partly retracted, so that ultimately the sore is circular, with a diameter of the length of the cuts; whereas, by the potash and iodine plan, the centre gives way, and all the rest of the skin retains its vitality and its former position; and even though the edges appear at first to be undermined, by the time the slough has come away the greater part is generally filled up by granulations; and, as I have before said, contraction of the whole sore has commenced.

To complete my remarks, I must shortly allude to the general treatment.

The indiscriminate use of stimulating food and drink is to be avoided. Some gentle aperients are required at first; and afterwards the medicine best suited for the majority of cases, is a mixture of ten grains of chlorate of potash with ten minims of the tincture of the sesquichloride of iron. Food in a nutritious and fluid form is required, and occasionally wine or beer, if the discharge is very free, and the pulse seems to require it; and if there is much weakness with sweating, quinine and acid, and perhaps an opiate at night.

Mr. Higginbottom, whose name deserves all honour, for he is a staunch and honest opponent of the vices of the alcoholic treatment, makes the remarkable and very satisfactory statement that he has never prescribed alcohol in any form for this malady, and that he never saw a fatal case.

The question of pain will arise, and may, with some, be an element in the determination as to the plan of treatment; but it has no weight at all compared with the question of the patient's safety. When a large surface is touched with the caustic freely, there is sometimes much pain; but in those cases a long incision would be necessary, and patients dread the caustic much less than the knife; and I have used the freezing mixture of pounded ice and salt, applied for five minutes to the surface, with the effect of almost destroying the feeling without interfering with the chemical action of the alkali. The advantage in this respect is all in favour of the caustic; and the freedom from pain which the patient experiences, as soon as the first burning has passed, is very marked.—*British Medical Journal*, August 8, 1863, p. 154.

54.—FINE CLAY AS A DRESSING TO SORES.

Dr. SCHREBER, of Leipzig, recommends the use of clay as the most "energetic, the most innocent, the most simple, and the most economical of palliative applications to surfaces yielding foul and moist discharges." He moreover considers that it has a specific action in accelerating the cure. Clay softened down in water, and freed from all gritty particles, is laid, layer by layer, over the affected part to the thickness of about a line. If it become dry and fall off, fresh layers are applied to the cleansed surface. The irritating secretion is rapidly absorbed by the clay, and the contact of air prevented. The cure thus goes on rapidly. This clay ointment has a decisive action in cases of foetid perspiration of the feet or armpits. A single layer applied in the morning will destroy all odour in the day. It remains a long time supple, and the pieces which fall off in fine powder produce no inconvenience.—*British Med. Journal*. April 11, 1863, p. 381.

[We can quite corroborate Dr. Schreber's observations, having used fine clay poultices for several years—chiefly, however, in cases of local inflammation requiring the application of cold. Rugs wet in water, or goulard water so rapidly become dry and hot that the benefit from the cold application is completely lost. There is no dirt when the clay is enveloped in a piece of fine linen, and is not too fluid in consistence.—EDS.]

55.—ON A CASE OF ANÆMIC SPHACELUS.

By Dr. A. S. MYRTLE, Harrogate.

[Colonel A. B., aged forty-six, five feet ten inches in height, healthy looking, strongly built, and of sanguine temperament, consulted Dr. Myrtle, with the following symptoms:]

Fingers of both hands, especially those of the right, are pale and cold; the right little finger, from its point to its middle, feels as cold as ice, and its ungual phalanx is blue—looks as if dead; under the tops of each nail, and extending across, there is a purple line about one-tenth of an inch in breadth.

No sign of inflammatory action is visible on either dorsal or palmar aspect of the hands, and the thumbs are natural; none of the fingers are altered in

shape, nor are they destitute of sense, except the last phalanx of the right little finger.

The ears are much colder than natural, have a mottled appearance, and exhibit on the outer and posterior part of each helix a number of ecchymosed patches.

I told Colonel B. his symptoms indicated great want of power, as regards the circulation; that he was not to look upon them as trivial, but to watch them. I advised him to live more generously than usual, and to drink a pint of port, at least, after dinner. The fingers and ears to be rubbed morning and evening with turpentine liniment, and covered with cotton wool; all cold ablutions to be discontinued.

Aug. 14th. He tells me his fingers are still subject to become cold and numb on getting out of bed, and that it is some hours before circulation is established and warmth restored. They look very much better, except the right little one, the lower half of which is evidently dead; the point has become black and shrivelled—is mortified, in fact. I observe ecchymosed patches on the dorsal surfaces of two or three fingers similar to those on the ears. The ears are better; no increase of discoloration, and less painful to the touch; pulse 72, weak; bowels regular; urine healthy; appetite good. To continue treatment, and to take fifteen drops of turpentine three times a day on a piece of sugar.

15th. Better; little finger more shrivelled.

16th. Has passed a sleepless night, having been kept awake by severe and constant burning pain in the feet and toes; the feet are pale, cold, and clammy, the extremities of the toes being bluish and tender to the touch; the fingers, except the little one, are well, and the ears are nearly so. To keep in bed, have the feet well rubbed with a dry warm towel, then with the turpentine liniment, and afterwards to be wrapped in cotton-wool. To take thirty drops of turpentine, and with each dose one-sixth of the following mixture:—Sulphate of quinine, twelve grains; chlorate of potash, one drachm and a half; syrup of ginger, six drachms; camphor mixture, to eight ounces. To take two of the following pills at bedtime:—Extract of hyoscyamus and extract of conium, of each twelve grains; camphor, six grains; make six pills.

17th. Passed a better night; feet warmer, toes less painful. Nothing, he says, annoys him but his little finger, which is dry, black, and cold as marble; on tapping the table with it, it sounds as if it were made of stone; the line of separation is beginning to show itself, but is by no means distinct. Continue treatment.

18th. Last night he felt his feet so much better, that he left his room, and played two or three games at billiards. This morning he finds his feet better, and has passed a tolerable night; thought the exercise of last night did him good. No change in appearance of finger.

19th. Feet well; out walking before breakfast.

21st. Feeling that a separation of the dead portion of the little finger from the living would prove tedious, and having never seen a similar case, I advised Col. B. to have another opinion; and with that view he went to Leeds, and consulted Mr. Samuel Hey. This gentleman examined him carefully, advised that the finger should not be meddled with, recommended the addition of citrate of iron to his quinine mixture, the discontinuance of the stimulating embrocation, fearing it might induce excessive action in a part already deficient in vitality, but to keep the finger warm. In his note to me he asks the question, "What is the cause of gangrene here?—is it purpura, or diseased blood-vessels?"

24th. The skin of the fingers and ears, underneath which patches of ecchymosis were observed, has desquamated, leaving healthy cuticle. The line of demarcation is now distinct, but there is no appearance of inflammation about it, no discharge, no smell.

Sept. 2nd. I was sent for this morning in consequence of Col. B. having suffered during most of the night from a severe and constant burning pain in the second toes, the ends of which and underneath the nails look bruised. He cannot bear to hang the feet down for above a few seconds,

and dreads the slightest pressure. He looks anxious, and fears that the toes will mortify like the finger. On pressing the ball of the foot, or any part of the great toe, pain is occasioned; the feet are natural in appearance and temperature. As the treatment employed during his former attack proved successful, I had again recourse to it; adding an opiate at bedtime, with a little colchicum, as I began to think that the symptoms bore some resemblance to rheumatism.

4th and 5th. Symptoms somewhat improved.

6th. Passed a bad night; pain in toes on the increase, I therefore again recommended a consultation with Mr. Hey, which I was fortunately able to attend. After a careful examination, Mr. Hey expressed his opinion that the *causa mali* was to be found in the diseased condition of the blood-vessels, with a tendency to inflammation of the fibrous tissues. He had seen two similar cases, and thought it not improbable that the second toes might sphacelate. We agreed to try the effects of painting the balls of the feet and toes with tincture of the muriate of iron, and to give the following mixture:—Citrate of iron and quinine, one drachm; iodide of potash, sixteen grains; bicarbonate of potash, a drachm and a half; infusion of quassia, to eight ounces: one-sixth three times a day. The soothing pills to be continued, and the feet to be kept in wool.

7th. The patient had a better night; pain moderate.

9th. Very much better; has had no pain in feet, and can bear firm pressure on the toes.

10th. Perfectly well. To discontinue the application of the tincture of iron.

12th. With the exception of the finger, the patient is quite well, and intends leaving to-morrow. The pulse is stronger, and the circulation in the extremities is free and natural. There is no attempt in the finger at separation of the dead part from the living, and I fear it may be months before that is effected. I impressed upon Col. B. the necessity of keeping his hands and feet warm and dry, and of avoiding exposure to wet and cold as much as possible. I also told him that he might with advantage continue his tonic mixture for some time.

After leaving Harrogate he went south, and I occasionally heard of him. He continued much in the same state as when I last saw him, until the end of November, when, after having been out shooting, he experienced a return of the pain in his great toe, for which he applied to Mr. Hussey, of Oxford, under whose judicious treatment he rapidly recovered. The finger was shown to more than one eminent surgeon in town, and on January 23th the gangrenous portion was amputated by Mr. Walter J. Coulson, chloroform being administered. In a few days, the stump progressing favorably, Col. B. returned to the country. About a month after the operation, Mr. Coulson tells me, a small abscess formed at the phalanx; on opening this he found the bone exposed, and had no doubt that a small portion would exfoliate. He remarks in his letter, that "since the operation there has been less pain in the fingers and toes, and the patient has slept better."

Remarks.—I have called this a case of anæmic sphacelus because I believe the death of the little finger and threatened mortification of the other fingers and toes arose chiefly, if not entirely, from their bloodless condition. I have found no similar case on record; all the cases of spontaneous gangrene I have perused are attributed to mechanical obstruction of the circulation, by means of plugged arteries, osseous degeneration, atheroma, cold, &c., or are described as local manifestations of constitutional evils, such as purpura, ergotism, typhus, &c. The only case which is not assigned to one or other of these conditions is recorded in the *Provincial Medical and Surgical Journal* for 1846, p. 302; but even here, "although many were the conjectures as to the pathology," the fact that mortification was preceded by "slight febrile symptoms with petechiæ for four days" (how many more?) points to toxæmia of one kind or another as the exciting cause of gangrene. I am satisfied that none of the above-named conditions existed in Col. B.'s case.

Mr. Hey suspected disease of the arterial coats; but he only saw the case twice. After many careful examinations, I came to the conclusion that the arteries were healthy; and on Feb. 19th Mr. Coulson writes: "I am inclined to take much the same view of the case as you have done. Of one thing I am certain, and that is, that there is no disease in the arteries themselves. I believe with you that there has been a want of power in the *vis a tergo* of the blood, and, in addition, that there has been an excess of fibrin in the blood, favouring coagulation. I speak confidently respecting the condition of the arterial coats, for I carefully examined the radials and other superficial vessels, and found them all alike of normal suppleness."

I cannot express my views of the pathology of this case better than by copying the remarks I find in my case-book:—

After carefully considering the history of this case, I am satisfied that the whole symptoms arise from, and may be explained by—

1st. Feebleness of the circulation, from want of power in the *vis a tergo*.

2nd. Lowering of the vitality, from deficiency of nerve-force.

There may have been a tendency to inflammation of the fibrous tissues, or an excess of fibrin in the blood, but we cannot say positively that there was; whilst we can say that the heart's action was extremely feeble, and consequently that the circulation, especially in the extremities, was languid and imperfect. And, considering the constant haul upon Col. B.'s physical powers and nervous sensibilities, I think we need not wonder that he had nigh become bankrupt as regards that principle of life, nerve-force, which must imbue the whole man in order that he may not only enjoy perfect health, but be able to resist certain pernicious influences to which he is frequently exposed. The portion of the little finger which was lost was dead for some time before I saw it, and in my opinion might have been saved had it received in time similar treatment to its fellows.

One word as regards treatment. Had I known when Col. B. was under my care the power digitalis possesses as a cardiac stimulant or tonic, I would have given it a trial. I had been in the habit of using it in heroic doses in delirium tremens, but then I only looked upon it as a counter-poison to alcohol. I have used it as a tonic lately in a case of cardiac debility with irregular action, consequent upon epilepsy, with great benefit; and had I an opportunity, I would employ it in a case similar to that whose history I have now related.—*Lancet*, May 20, 1863, p. 602.

56.—HOW TO PREVENT PITTING AFTER SMALL-POX.

By Dr. F. Bowen, Upper Berkeley Street, Portman Square.

An incident happened to me some thirteen years ago which induced me to devote much attention to this subject ever since, not only in this country, but in some of the large Continental cities.

In the year 1850, I was connected with the Marine and Emigrant Hospital, Quebec, Canada. I had been directed by the senior surgeon, Mr. Douglas, to puncture the vesicles on the face and neck of one of the Hospital patients then suffering from small-pox with a needle dipped previously in a strong solution of nitrate of silver. I felt sceptical as to the success of this treatment, and secretly determined to apply the needle and solution to the vesicles on one side of the face and neck only, and watch the result. I did so. The patient recovered; but the disfigurement was really frightful, for while one half of the face was deeply pitted, the other half was smooth and free from spots, as before the attack. The superintending medical officer was not inclined to discharge this patient, but ever and anon produced him before the class in the lecture-room, where he, poor fellow, was laughed at, while I was twitted. At last the man turned rusty, and threatened to do me some personal injury. To my great relief, he was induced to leave the country, not before a purse, however, had been collected for him, towards which I subscribed most liberally.

Among the many plans recommended, and all of which I have tried over and over again,—charcoal and starch and mercurial plasters; collodion; solution of india-rubber with chloroform; sulphur; iodine; nitrate of silver; down to tripe-water, much in vogue among the poor,—I have found none so effectual, none so easy of application, and none so altogether free from annoyance to the patient, as puncturing the vesicles with a needle dipped in a solution of nitrate of silver. I have used it, I may safely say, over 300 times with most satisfactory results.

1. When do I puncture the vesicles?
2. What kind of needle do I use?
3. What strength of the solution of nitrate of silver?
4. What results from this treatment?

1. About the fifth to the seventh day,—it depends on the development of the vesicles,—when the small vesicles, somewhat depressed in the middle, surrounded by an inflamed margin, and circular, can be seen on the top of each pimple; certainly before the contained matter assumes the appearance of pus. Even in the confluent forms I would puncture, and have always done so; but I cannot speak with the same confidence with regard to results as in the more common or modified small-pox. In the former cases there are generally grave and serious complications of one form or other to deal with, and which tend to an unfavourable issue of the case.

2. The kind of needle I use is the one commonly employed for twisted suture, flat and sharp at the point; it makes its way very easily, carries with it enough of the solution for each vesicle, and its shape favours a slight discharge, on withdrawing the instrument, which can be absorbed by lightly touching the part with a piece of soft cotton wool held in pliers.

3. The strength of the solution I use is $\mathfrak{D}$ iss. to the $\mathfrak{z}$ j. of water; it is strong enough to effect the change sought to be produced; what more can be required? In twenty-four hours the result is apparent; the vesicle has dried up, no itching or unpleasantness remaining.

4. This results from the treatment: the application in the way recommended is not tedious; the nurse can do it; it does not cause the patient the slightest inconvenience, which is more than can be said of the many disgusting appliances one sees in daily use; and it prevents pitting.

I do not pretend for one moment to say that I offer a new idea to the profession. I only wish to say, that, having tried all modes of treatment recommended, I am satisfied, after much experience in treating both rich and poor, to abandon them all in favor of puncturing with the needle and solution of nitrate of silver at the time indicated.—*Med. Times and Gazette*, May 23, 1863, p. 545.

57.—ON NITRATE OF SILVER TO PREVENT THE PITTING OF SMALL-POX.

By JOHN HIGGINSBOTTOM, Esq., Nottingham.

Having observed, many years ago, that the nitrate of silver had been used on the Continent by MM. Velpeau, Bretonneau, and Serres for the purpose of preventing pits and scars consequent on small-pox, I was induced to apply it as they directed, by puncturing the centre of each vesicle with a needle, and then applying the solid stick of the nitrate of silver. I found it effectual in preventing any further progress of the pox.

The next patient on whom I used the nitrate of silver was a strong, healthy young man, about twenty years of age, with confluent small-pox. I punctured a few of the vesicles on the face, but these being very numerous, I satisfied myself with applying the concentrated solution over the whole surface of the face, where they were most confluent, without making any punctures. The solution answered as well as where the punctures had been made in arresting the progress of the eruption. The next case of confluent small-pox was one where no punctures were made,—Mr. P., a young man, nineteen years of age, and of delicate constitution. From the confluent state of the

pox I should have expected deep pits and scars on his face. I applied the concentrated solution on the whole of the face and the ears in the same manner as recommended in erysipelas.

The vesicles of the pox were immediately arrested in their progress, and in four days presented small hardened eschars, free from inflammation, whilst the pustules on the body were gradually proceeding to suppuration. In about nine days the eschar had come away from the face without leaving pits. In this case the nitrate of silver not only prevented the pits, but the inflammation, irritation, and offensive suppuration which are so distressing to the patient. If thought necessary, the nitrate of silver might be applied all over the scalp, as in erysipelas, to prevent cerebral inflammation. It might be applied on and within the cavity of the ear to prevent otitis, and on the conjunctiva to prevent ophthalmia. I have used as a gargle to the throat in small-pox, with great benefit, a solution of a scruple of nitrate of silver in three ounces of distilled water.

For the remedy to be successful in preventing pitting, it should be applied on the fourth or fifth day of the eruption. The concentrated solution being used, composed of the old stick nitrate of silver, four scruples, to four drachms of distilled water.—*Med. Times and Gazette*, July 11, 1863, p. 54.

DISEASES OF THE EYE AND EAR.

58.—ON THE OPERATION OF ABSCISSION IN STAPHYLOMA.

By G. CRITCHETT, Esq., Surgeon to the Royal Ophthalmic Hospital, Moorfields.

[The object of the present paper is to describe a method of operating for staphyloma, which the author has adopted during the last two years, and which seems to possess some advantages over the various plans that have been hitherto recommended.]

The cases to which I am more especially anxious to direct attention in this paper are those to which the term of staphyloma has been more commonly applied, and in which the entire globe of the eye may be said to be implicated to a greater or less extent. Usually all perception of light is lost. Even where this remains, all possibility of recovering the slightest useful vision is gone.

The size, appearance, pathological conditions, and causes, are exceedingly varied. Perhaps scarcely any two cases are perfectly alike. Sometimes the morbid change is limited to the cornea, which having been destroyed either by ulceration or sloughing, its place is supplied by a membrane, which somewhat resembles that tissue in its appearance, and which, possessing a less degree of resistance, gradually gives way to the pressure from within, and bulges and enlarges. Sometimes it presents a dense white mass, which rises into a prominent conspicuous conical projection, the apex of which is not unfrequently thin and semi-transparent, as if an abortive and imperfect effort had been made by nature to form something resembling a pupil.



Sometimes it forms a more uniformly round or globular prominence. Sometimes these projections attain a considerable thickness, probably an effort of nature to re-establish the balance between the internal pressure and the external resistance; as I have before suggested, this tissue is found, on examination, to be made up of an interlaced fibrous structure, without any trace of true cornea. This is, however, by no means invariably the case. I have met with cases in which a central penetrating ulcer of the cornea (particularly in infants, and as the result of purulent ophthalmia),

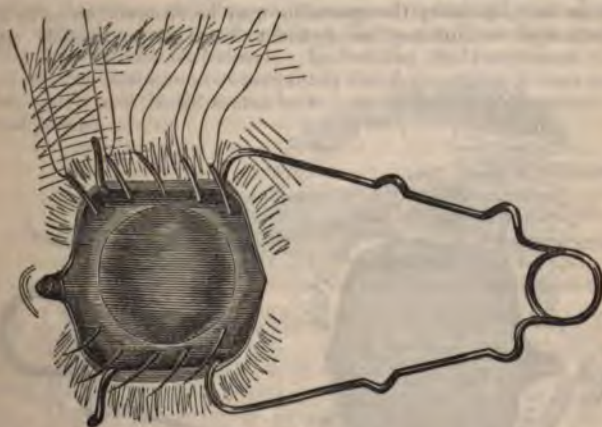
has been followed by a large staphyloma, a considerable portion of which was made up of true cornea. In many of these cases the projection is limited to the area of the cornea, and does not involve the rest of the globe, which preserves its normal size and tension. The iris is often blended with its posterior surface, and the lens is in contact with it also. Or again, I have found a considerable quantity of aqueous fluid filling up the interior of the staphylomatous projection. These various forms, having attained a certain size, will remain stationary; others will manifest a tendency to increase. They are invariably the result of disease limited to the anterior part of the eye—the cornea, iris, and lens—not involving the ciliary region. When, however, the anterior or corneal staphyloma has attained considerable size, I have observed that the sclerotic region will likewise expand, and seem to become secondarily involved in the hypertrophy. Instead of the dense white opaque form of anterior staphyloma, it sometimes presents a dark blue or black appearance. It covers a larger area, is more perfectly round and expanded, and is softer and thinner than the previous form. It has a tendency to almost indefinite, though gradual enlargement. In other cases we find the tendency to staphyloma limited to the ciliary region. The cornea, iris, and lens are thus advanced to a considerable extent, without producing any marked change in these structures, but only a very decided increase in the antero-posterior measurements. This is possible to a very considerable degree without any serious or extensive impairment of vision, although in many such cases there is closed pupil and capsular cataract, &c. In another and a large group of cases, the entire globe of the eye is implicated in the enlargement. There may be a uniform enlargement of the entire tunics, both anterior and posterior, or there may be a general enlargement, with irregular bulgings in various parts. In this way a staphyloma sometimes attains a very considerable size, in certain parts it becomes exceedingly thin, and in some instances it suppurates, and breaks like an abscess. In others it may give way and evacuate its aqueous contents; or, having attained a certain size, it may remain stationary. In considering the question of operating, there is an important distinction to be made between those cases where the disease is chiefly limited to the anterior part of the eye, and those in which it has originated in the posterior part and in the deep textures. In the latter the vessels are often enlarged and weakened, and prone to give way when support is taken from them, producing protracted hemorrhage.

It will be generally admitted that in all cases of complete staphyloma, some operative proceeding is called for. The deformity is usually considerable, and is liable to increase; the part is in a morbid condition, often inflamed and irritable, and exerting an unfavourable influence upon the other eye. Whether it remain in a quiet state, or pass through a series of changes, it becomes desirable to operate. We may now consider what are the conditions that we wish to bring about by the operation.

The object we have in view is to reduce the staphyloma to a firm, elastic bulb, that shall be fully influenced by the various muscles, and shall be about a third less in size, or at any rate, in its antero-posterior measurement, than the normal eye, this condition being the most favourable for the employment of an artificial eye. Various methods have been employed with a view to obtain this result, that which has been most commonly employed up to the present time both in this country and on the continent, has been to cut away the anterior part of the staphyloma with an ordinary Beer's knife, so as to open into the vitreous chamber. Some slight modifications have been introduced by various operators, some removing only a small portion, others taking away the anterior third, or even half of the staphyloma. Some have introduced a needle previously, so as to allow some of the contents of the globe to escape previous to abscission. Those who have had an opportunity of extensively testing this method of proceeding, have become aware of several serious inconveniences. It not unfrequently happens, that a gush of vitreous humour follows the removal of the anterior supports, and subsequently the enlarged and diseased vessels give way, and continue to bleed for several hours, distending the surrounding parts, causing considerable pain, and ultimately suppu-

ration. This untoward result may follow immediately upon the operation, or a few hours or even days after, or in cases where hemorrhage does not occur, suppuration may occur attended with considerable reaction, and constitutional disturbance. Under either of these contingencies, the globe is apt to shrivel up into a small compass, with very slight movement, and imperfect adaptation for an artificial eye. This shrunken globe occasionally becomes hard and painful, and irritates the companion eye. In other cases where no hemorrhage occurs, and no suppuration follows, the sclerotic opening remains in a patent state with the vitreous humour or the lens presented. Repair, is, under these circumstances difficult, tedious, and uncertain. The membrane that is formed is not unfrequently elastic, and by yielding to the pressure within, bulges, and constitutes a fresh staphyloma, or forms an unstable and irritable basis whereon to rest an artificial eye.

Such are the objections to the methods of operating ordinarily employed for the reduction of a staphyloma, and they lead us in the next place to the consideration of the results we are desirous of obtaining, of the accidents we wish to avoid, and the method proposed for their avoidance. In reducing a staphyloma, the aim and object is to form a dense, fibrous, elastic, moveable bulb, filled with fluid, flattened upon its anterior surface, and of such a size as admits the ready adjustment of an artificial eye, and its free movement. In carrying out this object, it is important to mark the size and form of the piece to be removed, to allow of some slight escape of the contents of the eye, so as to avoid a sudden gush, to keep up some support during the operation, and subsequently to place the parts in a favourable condition for supporting the vessels, keeping up pressure, and uniting by the first intention. I will now endeavour to describe the method by which these various objects are intended to be carried out. The patient being placed under the influence of chloroform, the staphyloma is freely exposed by means of a wire speculum, a series of four or five rather small needles, with a semi-circular curve, are passed through the mass about equi distant from each other, and at such points as the lines of incision are intended to traverse. The needles are left in this position with both extremities protruding,

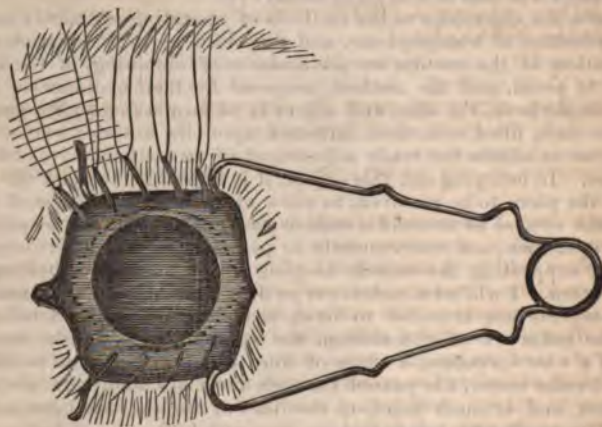


to an equal extent, from the staphyloma. The advantages gained by this part of the proceeding are:—1st, that a small quantity of the fluid parts of the distended globe escapes, thus diminishing pressure, and preventing a sudden gush of the contents when the anterior part is removed. 2ndly, that the points of emergence indicate the lines of incision. 3dly, that the presence of the needles prevents, or rather restrains, to some extent, the escape of the lens and vitreous humour, after the anterior part of the staphyloma has been removed. *The next stage of the proceeding is to remove the*

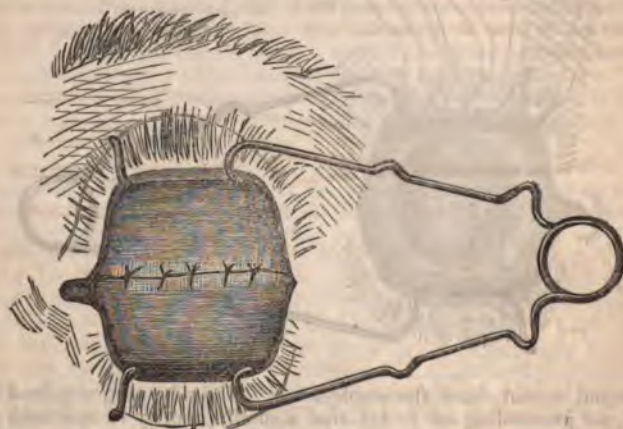
anterior part of the staphyloma. This requires some judgment and modification in size and form, in accordance with the extent of the enlargement, so as to leave a convenient bulb.



My usual plan is to make an opening in the sclerotic, about two lines in extent, just anterior to the tendinous insertion of the external rectus muscle with a Beer's knife. Into this opening I insert a pair of small probe-pointed scissors, and cut out an elliptical piece, just within the points where the needles have entered and emerged. The needles, armed with fine black silk, are then drawn through each in its turn, and the sutures are carefully tied so as to approximate as closely as possible the divided edges of the sclerotic and conjunctiva. The



operation is now finished; the speculum may be removed so as to allow the lids to close, and wet lint may be applied to keep the parts cool. In a large



majority of cases, union of the divided edges takes place by the first intention. The operation has been performed by myself and by my colleagues at Moorfields Hospital, in about thirty cases, and suppuration only occurred in four cases. I generally leave the sutures in for some weeks. Sometimes

they come away spontaneously, and when that is not the case, they may readily be removed after all irritation has passed away, and after firm union has taken place. If the case be examined three or four months after the operation, a moveable bulb is seen with a flattened anterior surface, traversed by a transverse white line of cicatrix, and having rather a prominent external angle. Upon this an artificial eye can be readily adapted, which moves to a greater extent than I have observed previous to the adoption of my present plan.—*Ophthalmic Hospital Reports, Vol. IV., 1863, p. 1.*



59.—FORCEPS TO FIX THE GLOBE IN ANY OPERATION ON THE EYE.

By J. F. STREETFIELD, Esq., Assistant-Surgeon to the Royal London Ophthalmic Hospital, and to the Eye Infirmary of University College Hospital, &c.

The suggestion I am about to make under this head is due to a difficulty often to be met with in our operations.

If the eye is held by a single point of conjunctiva, the eye-ball may have two different kinds of motion, in consequence of the laxity of the tissues held. In the first place, wherever the eye may be held, it has a considerable degree of motion from side to side of that point. In the second place it may rotate round the point of conjunctiva as a centre. The first objection is that which I had found in practice; the second occurs to my mind only in theory. Both of these objections are remedied by holding the conjunctiva at *two points, one on either side of the globe.*

The forceps is commonly used at Moorfields to steady the eye. I had found before this time the danger threatened by the partial and, in some directions, extensive movements allowed in its use, two opposite recti, at least, being more or less free to act. In devising the instrument I wish to bring into notice, as a means of *completely* fixing the globe, I kept to the idea of forceps, which practically seems to be best, and sought to acquire *two opposite fixed points.*



In short, I have had forceps made with double ends, to each blade two points five-eighths of an inch apart. (The woodcut represents the forceps one-third less than its real size.) Each end or point of one blade has a little tooth which fits between two others on one of the two ends of the opposite blade. These teeth not only project towards each other, but a little downwards, so that, in use, the toothed projections come first into contact with the conjunctiva. The upper end of the instrument is like the common forceps. The middle of each blade is made rough externally, as usual, that the instrument may be held firmly. Mr. Weiss, the maker, has introduced a *stop guide*, that is to say, a guide with a shoulder, so that by one contrivance the two purposes are gained. The guide projecting at right angles from the inside of one blade enters the hole into which it fits in the other blade, when the two are approximated, and the blades cannot be brought together more than they should be, because of the stop made by the shoulder of the lower,

thicker part of the guide itself. The total length of the forceps is four inches and five-eighths. The blades are much widened below their middle, and each blade has a U-shaped extremity, an inch and two-eighths in depth, the space between the two branches of the blade being of the breadth of the distance apart ($\frac{3}{8}$ in.) of the points, even to the bottom of the U-shaped interval, the place of divergence of the double end of each blade. I think it important that this interval should be so deep and wide, if it were V-shaped the instrument would be more elegant but less practical, for without a wide space between the points of the forceps light is not so well admitted, and any instrument that may be wanted is used less conveniently.

The distance between the ends of each blade of the forceps I made somewhat greater than the breadth of an average cornea, so much so that my forceps may seize conjunctiva and, which is important, the sub-conjunctival tissue, at that distance from the margin of the cornea on two opposite sides, which seems to afford the best hold and command of the eye, according to experience of ordinary forceps. Sometimes in using the new forceps I have rested the hand in which it is held on the forehead of the patient, and, as I stand behind the head of the patient, who is supposed to be lying down, I have then operated *below* the forceps. At other times I have rested my hand, holding the forceps, on the patient's cheek, and done the operation *above* the instrument. The points at which the conjunctiva, &c., is seized, of course, need not always be in the line of the palpebral aperture, they may be above and below or at any other two opposite points around the cornea. I have found the instrument answer its purpose well; with it I have *complete* command of the globe, and I know of no real inconvenience or difficulty in its use or after ill result. If it is more difficult to seize a little fold of conjunctiva, &c., at two points at once, than at one only, it is soon done easily, and it is worth trying. At first an unnecessarily large fold is taken up by one or both ends of the closed blades.

I need not stay to examine the general principles on which *common* forceps has been preferred to other means of fixing the eye. It exerts no compression of the globe. It does not only prevent the movements of the eye in one direction, but in two, and partly in more than two, directions. Still it does not prevent all the movements of the globe. The most recent English writer on this subject (Mr. France, "Guy's Hospital Reports," 1858, pp. 81—102) says he finds artery forceps hold "the eye perfectly still and motionless, or as nearly so as possible." With double-ended forceps it will be found possible to fix the eye as completely as can be desired, and that without any reservation. Indeed, the command which Mr. France acquired over the patient's eye was not only, at any rate in extraction, gained by the forceps he used, but by supplementing its firm hold with *two other points* at which the globe was steadied. He says (p. 93), "I placed my fore and middle fingers on the globe in the usual way, and thus perfect the command of the organ." Whilst operating he gave up the forceps to an assistant, but even if this could always be done, two fingers of the operator's hand could not, in all operations, be used to steady the globe, nor does he say that the two fingers are always thus to be used.

Mr. France, of course, does not believe that any important injury can be done to the conjunctiva by the forceps. To this I would add that, if the conjunctiva becomes torn, or is necessarily compressed very much, in using ordinary forceps, it is not so likely to tear, nor need the conjunctiva be so firmly compressed when a double forceps is used, because the strain of the attempted movements of the eye is halved and equalized. Forceps with teeth certainly give a good hold of the conjunctiva, and I do not know that it does more injury than is done by the firmer compression required when the broad ends of forceps without teeth are used. It is not absolutely necessary that the line between the two points at which the eye is steadied by my forceps should be through the centre of the cornea, so that it can be used in extraction, when a large section of the cornea is required, or in any operation. Mr. France has a paper "On the use of Forceps in Extraction of Cataract" in this Journal (Vol II., pp. 20—25), in which its advantages are shown; and he

is followed in this by Mr. Poland (Vol. III., pp. 263—270).—*Ophthalmic Hospital Reports, Vol. IV., 1863, p. 100.*

60.—VASCULAR CORNEA AND GRANULAR LIDS—ONE EYE TREATED BY INOCULATION, THE OTHER BY PERITOMY.

Under the care of GEORGE LAWSON, Esq., Moorfields Ophthalmic Hospital.

E. R., aged nineteen, was admitted into the Ophthalmic Hospital on the 5th July, in the following condition:—

Both lids were extremely granular—the granulations being large and fleshy. Both corneæ were completely vascular and villous, presenting quite a velvety appearance; no portion of clear, healthy corneæ remained. She was able to see her way about, but could not discern features or count fingers with either eye, at the time of her admission. She had been long under treatment elsewhere, but so far from improving, says that lately she had been getting decidedly worse. Her left eye, she thinks, is the worst. On this account the left eye was selected for inoculation, and some pus, from the eye of a child suffering from severe purulent ophthalmia, was introduced between the lids. This was speedily followed by intense inflammation, great pain, and swelling of the lids, accompanied by a copious discharge of pus. She was kept in the hospital, allowed to walk about the ward, and maintained on a good diet, but the action induced by the inoculation was left to run its course, and on the 17th of the month, when the activity of the inflammation had greatly subsided, she was made an out-patient, but there was still a free discharge from the lids and the surface of the eye. She has regularly attended the hospital, and the condition of the eye continues to improve. The last report is on—

October 26th. The granulations of the lids have disappeared, and a smooth surface is seen. The cornea is bright and transparent, although certainly not so clear as a perfectly healthy one which had never suffered from disease. To the eye it appears non-vascular. She is able to read No. 6 of Jaeger's test types, and in a few months' time will probably be able to read No. 4 or No. 2.

On the 10th of October she was readmitted for the treatment of the right eye. Since her left eye had been treated, her right had continued to get worse, and now with it, she had little more than a mere perception of light. She was unable to recognise features or to count fingers, or, unaided by the left eye, to see her way about.

In this eye peritomy was performed, and a piece of conjunctiva, $\frac{1}{4}$ th of an inch in width, was removed from around the entire circumference of the cornea—care being taken to cut it away close to the corneal edge, and at the same time to dissect off all the sub-conjunctival tissue, which corresponded to the piece of conjunctiva removed.

This proceeding was followed by a considerable amount of pain, and a free suppurative inflammation. The lids were puffy, the eye very irritable to light, and there was a moderate discharge of thin semi-purulent matter from between the lids. The conjunctiva was much chemosed. These acute symptoms soon subsided, and in about ten days she was able to leave the hospital and become an out-patient, but a subacute conjunctivitis remained, and a free discharge of semi-purulent fluid continued to flow. The eye appeared almost as if it were recovering from inoculation. She has been seen at regular intervals since the operation, and no treatment has been adopted to check the discharge from the conjunctival surface of the lids and eye-ball.

December 4th. The discharge still continues to some extent. The sight is decidedly improved. She is just able to count fingers, but, until the present state of irritability has entirely subsided, it is not fair to say what benefit she has derived from the operation. In this patient peritomy produced more acute symptoms than I have ever seen in others on whom it has been performed, but the case was a severe one. The conjunctiva was thick and

almost velvety, and the sub-conjunctival tissue very abundant, and, as a consequence, the action which followed was excessive.

In a case so severe as this one, inoculation by purulent matter is a far more efficient, and, I think, an equally safe proceeding. It is in the milder forms of vascular cornea, where inoculation cannot be judiciously advised, that peritomy may be of service.—*Ophthalmic Hospital Reports, Vol. IV., 1863, p. 64.*

61.—ON SYNDECTOMY.

By Dr. C. BADER, Assistant Ophthalmic Surgeon Guy's Hospital, and Curator to the Royal London Ophthalmic Hospital.

The term syndectomy is applied to an operation, which consists in the removal of a large zone of conjunctiva and subconjunctival tissue from around the cornea for the relief or cure of pannus and other lesions of the cornea.

The operation was introduced by Dr. Furnari, of Paris. An account of it is given in the *Gazette Medicale*, 1862.

"The requisite instruments (made by Mathieu, of Paris) consists," he says, "of: 1. A forceps à griffes multiples: 2. A pair of blunt-pointed scissors curved on the flat; one of the rings of which has a contrivance for holding a sponge: 3. A small blunt-pointed hook, the cavity of which is sharp, with which to cut through vessels which have been hooked up: and, 4. A small scarifier.

"The patient sits during the operation, and the eyelids are kept apart with a speculum. Commencing his incision near the outer canthus, Dr. Furnari excises a broad ring of the ocular conjunctiva, extending from the margin of the cornea to within three millimeters (about an eighth of an inch) of the line where the conjunctiva is reflected from the globe to the inner surface of the eyelids. Symblepharon might ensue if more was taken away. For the purpose of fixing and turning the eyeball during the operation, a flap of conjunctiva is left at the upper margin of the cornea; this is removed last. The subconjunctival tissue must be carefully dissected off, so as to expose the surface of the sclera. No trace of cellular tissue or of blood-vessels should be left; any which escape the scissors are to be caught up and cut with the sharp hook. The vessels upon the cornea are freely scarified; and their ends, if projecting, cut off with scissors.

"After the bleeding has somewhat subsided, the exposed sclera and ulcerating portions of the cornea are touched with caustic, the vascular only slightly, and the transparent portions not at all.

"The caustic, nitrate of silver, is applied with a brush which has been just before rubbed upon the solid stick. Too strong cauterisation may leave corneal opacities, whilst too slight causes an insufficient exfoliation of the corneal epithelium, and allows the formation of fresh vascular webs. Local application of cold forms the after treatment. A strong irritation, but no inflammation, follows the operation; the abundant local bleeding seems to act antiphlogistically.

"The pain, photophobia, and lachrymation cease twenty-four hours after the operation. The elimination of the corneal epithelium commences a week later: the blood-vessels upon the cornea atrophy, the infiltrated blood, and lymph become absorbed: the pannous covering of the cornea exfoliates, and the transparent cornea appears three or four days after the operation: a thick plastic material covers the exposed sclera; a week later a conjunctival margin is again observed along the cornea; the other margin of the conjunctival wound, slightly swollen and granular, is advancing towards the cornea. In from one to two months all trace of a loss of the conjunctiva has disappeared; the new tissue possesses the characteristics of conjunctiva, and the functions of the eye are not impaired. Any blood-vessels which may have reappeared upon the surface of the cornea are to be excised, scarified, and touched with caustic. Dr. Furnari thinks that the vascular state of the cornea is either produced by the granular state of the palpebral con-

conjunctiva, or by an over-vascularity and thickening of the conjunctiva." The operation is indicated, according to him: "1. In the membranous and fleshy pannus; 2. In phlebectasias of the conjunctiva and cornea; 3. In simple vascular keratoiditis; 4. In partial vascularities of the cornea; 5. In interlamellar infiltrations of blood or lymph; 6. In corneal lesions resulting from entropion, ectropion, and trichiasis; 7. In staphylomatous conditions of the cornea, consecutive to softening of the latter."

I have myself performed syndectomy in twenty-four cases of vascular cornea, some with, others without, granular lids. Chloroform was given in most cases; the great pain, the bleeding, and the straining of the patient render the operation more tedious when performed without chloroform. The operator stands behind the patient, who is recumbent. A spring speculum is used to keep the eyelids open. The incision through the conjunctiva, made with blunt-pointed (strabismus) scissors, is (the cornea occupying the middle of the palpebral aperture) commenced close to the outer canthus in the right and close to the semi-lunar fold in the left eye, and is carried through in a circle parallel with the margin of the cornea. The conjunctiva, together with as much of the subconjunctival tissue as can be seized, is then dissected off towards the margin of the cornea, where its attachment is lastly severed. Two small portions of conjunctiva near the upper and lower margin of the cornea, which had been spared for the purpose of rotating and fixing the eye, are removed last. Particular care must be taken to cut and tear off all blood-vessels and the cellular tissue, from the part of the sclera situated between the insertion of the tendons of the recti muscles and the margin of the cornea. A small sponge is held in the hand which carries the scissors, so as to sponge small vascular spots quickly. As many blood-vessels and as much of the fleshy (pannous) tissue as can be removed from the surface of the cornea, without impairing its lamellated tissue should be taken away, and free scarifications of the blood-vessels upon the latter, and abrasion of the scarified portions conclude the operation. Simple water dressing constitutes the after treatment. Most of my cases were treated as out-patients. In cases where the eyelids were granular, on the third day after the operation, instillations were ordered of a solution of sulphate of copper (gr. ii ad $\frac{3}{4}$ j). The changes of the surface of the cornea after the operation, appear to contribute much towards the cure of the granulations of the lid; they seemed to decrease in size and number more rapidly than they would otherwise have done.—*Ophthalmic Hospital Reports, Vol. IV., 1863, p. 19.*

62.—ON A NEW METHOD OF OPERATING IN STRABISMUS.

By Dr. ARMSTRONG TODD, A. B.

[Dr. Todd during the last seven years has operated on about five-and-thirty cases of strabismus according to a method which differs considerably from that usually employed. He has never been able to discover afterwards the least trace of an operation having been performed.]

The operation consists in making a horizontal incision in the conjunctiva high up under the upper lid, and then a subconjunctival division of the tendon.

By this means the upper lid completely covers the incision in the conjunctiva, excludes the air from the divided extremities of the tendon, while its action as a constant lubricator with the tears encourages healing by the first intention.

It has been said that the same advantages are gained by operating from below under the lower lid, and that there is less difficulty in doing so; but the after appearance is much better from the superior operation than from the inferior; the folds of conjunctiva as they pass from the caruncula to the superior and inferior lids differ considerably. The former makes a blunt

cul-de-sac in the inner canthus, and the latter forms the plica semi-lunaris which gracefully curves downwards and forwards, terminating at the lower extremity of the perpendicular diameter of the cornea. This must be interfered with in the lower operation, and the result is a shrinking and retraction of the caruncula, giving sometimes the appearance of a slight external squint when the eye may be perfectly straight. I have not known this to happen in the slightest degree from the upper operation. This retraction of the caruncula is the invariable result of the mode first adopted of cutting the conjunctiva a little to the inner edge of the cornea and then coming down direct upon the tendon. This proceeding has another great defect; it admits the air to the cut surfaces of the tendon, and in consequence I have frequently seen suppuration and large growths of granulations which become very troublesome and add considerably to the after deformity. This never happens after the operation described below.

The following is the mode of proceeding:—The wire speculum having been introduced between the lids, the conjunctiva of the upper and inner angle, as it reflects from the posterior surface of the lid upon the eye-ball, is seized with a fine claw forceps and drawn downwards and forwards, then with a curved scissors a horizontal incision is made about a quarter of an inch or three-eighths long, then with another fine claw forceps the areolar tissue and sub-conjunctival membrane are drawn out through the first opening, the forceps still holding the conjunctiva, which may now be released, and the scissors again taken to divide these tissues down to the sclerotic, a small curved director is then introduced and directed at first towards the back of the eye and then drawn forwards and downwards so as to pass between the muscle and the eye-ball. This is readily accomplished and the tendon can be felt, and sometimes seen lying upon the director. A small curved bistoury is then passed down the groove, and with the act of withdrawing is made to divide the tendon, the point being seen as it passes upwards behind the conjunctiva, which must be carefully preserved from being cut; the director is then removed with its point pressing against the back of the conjunctiva, and will show if the muscle be completely divided.

This operation may appear to be very difficult and somewhat dangerous, but such is by no means the case. I have never had any accident nor experienced any difficulty.

It is curious how many different opinions have been advanced upon the real nature and cause of the ordinary internal strabismus. Of course there are various forms of the deformity depending upon known causes, such as paralysis, specks upon the cornea, &c., but I have never heard any real explanation of the ordinary internal strabismus which one so commonly sees. It is very rarely, if ever, congenital, and frequently it comes on suddenly at an early age after some derangement of the system, such as infantile convulsions. Now, is it a regular contraction of the internal rectus muscle? This is proved not to be the case by a simple experiment. If the hand be placed over what appears to be the straight eye an immediate change of circumstances takes place, the deformed eye becomes straight and the other takes its place in the analogous position of deformity; it stands to reason, then, that there can be no permanent deformity in the internal rectus muscle. The same experiment and result fully proves that the central portion of the retina, its most sensitive part, cannot be defective, or, at any rate, that the eye is not turned inwards for the purpose of presenting a more sensitive portion to the rays of light, because, on excluding the light from the other eye, the squinting one immediately calls into play this very portion, proving that it is still the more sensitive.

It has for a long time been my belief that this deformity is not a muscular affection, nor one of the retina, nor paralysis of any kind, but chiefly due to disordered action of the sympathetic nerves; in fact there is no disease, but a simple accident remaining after some severe temporary derangement of the entire nervous system. The eyes which were accustomed to act uniformly in parallelism, now act as uniformly in convergence. The governing power having been for a time suspended by the derangement of the nervous

system (convulsions in children, derangement of the stomach, &c.), accidental convergence takes place, and when this governing power is restored, the muscles of the eye act uniformly as before, but instead of the axes being parallel, they continue to converge and remain in that convergent position.

According to this theory, one cannot believe in a single squint, and this I have seen illustrated by some cases on which I have operated. My idea is that both eyes really converge equally, but this impairing vision, the weaker of the two gives way to the stronger, and turns still more inwards to allow of the other becoming straight. Thus, having operated after the above plan upon one eye, so little damage is done to the tendon by the simple division with the bistoury, I have frequently seen that only half the cure was effected; and upon division of the tendon of the other eye, the axes become parallel.

In consequence of this I almost invariably operate upon both eyes. I do not think that when the tendon is divided it attaches itself to a portion of the eye-ball further back, as I have heard some assert, but the good is effected by the suspension of nerve action upon those muscles, permitting of parallelism being restored, and then the cut surfaces of the tendons are united in other operations, and the eyes are again worked in parallelism.—*London Medical Review, May 1863, p. 576.*

63.—ON THE TREATMENT OF STRABISMUS AT THE ROYAL LONDON OPHTHALMIC HOSPITAL.

By GEORGE LAWSON, Esq., Assistant-Surgeon to the Moorfields Hospital, and to the Middlesex Hospital.

It has been stated that some of the objections to the subconjunctival operation are, that the plica semilunaris is interfered with, and that the result is a shrinking and retraction of the caruncle. Again, it is urged that suppuration and large growths of granulations follow the operation, and add considerably to the after deformity.

To such statements I can only say that the writer of them either could never have seen the subconjunctival operation properly performed, or else must have witnessed results very different from those which are obtained at Moorfields.

I would preface the remarks I have to make on this operation, by stating that the plica semilunaris ought never to be interfered with; that the falling back of the caruncle is an exceedingly rare occurrence after the operation, and cannot follow it unless improperly performed; and that suppuration of the wound and the after formation of granulations in the site of the cut in the conjunctiva never occur.

I will now briefly describe the operation as performed at Moorfields.

The lids are kept apart by the ordinary wire speculum. The surgeon then makes a small opening in the conjunctiva with scissors over the lower edge of the insertion of the rectus tendon, taking hold of the membrane, and often of the deep fascia at the same time, with the forceps, which, if the eye be turned inwards, may be slid (closed) along the surface from the edge of the cornea till they reach the proper spot for the opening; thus the eye need not be held by an assistant. The fascia being opened, the lower edge of the tendon is exposed *close to its insertion*. If the fascia has not been opened at the first snip, it is in its turn seized by the forceps at the same point and divided, without interference with any other structure; the object being simply to divide the tendon on the ocular side of the hook *at its insertion*. The blunt hook is now passed through the aperture in the subconjunctival fascia, and behind the tendon, which it renders tense by being made to draw on it slightly forwards and outwards. The next step is the introduction of the scissors. Mr. Bowman insists on the propriety of carefully introducing the points of the scissors, not much separated—one along the hook behind the tendon, the other *in front of* the tendon, and between it and the

conjunctiva, and of dividing the tendon by *successive snips* from the lower to the upper edge. If the tendon is divided by one cut, the operation is more roughly executed, for, as the blades have to be opened more widely, the opening in the conjunctiva and fascia must be larger; vessels of a larger size may be divided, and the tendon may be pushed off the hook before the points of the scissors: if this happen, of course the hook must be reintroduced. The surgeon completes the operation by making a small counter-puncture, by bulging the conjunctiva on the end of the hook in the situation of the upper border of the tendon after its division, and by then snipping it with the scissors; the object being to allow any of the effused blood immediately to escape, instead of diffusing itself over the sclerotic. The subsequent ecchymosis then never need extend beyond the seat of the operation, and should disappear within a few days.

The results of this operation, when properly performed, are so satisfactory that I feel any new method must possess very strong claims to justify its preference.

Before operating on a patient for strabismus, the visual condition of the two eyes is to be ascertained, and the relative strength of the internal and external recti muscles made out. Mr. Bowman is very decided in urging the necessity of carefully estimating the comparative strength of these muscles in both eyes, as according to their relative power he determines upon the necessity of operating on one or both eyes. He has adopted a set of symbols which indicate accurately their comparative state. The patient is made to look at a near object held at the extreme outer limit of his field of vision, first on one side, then on the other, and the extreme limit of movement of each eye inwards and outwards is then noted, with reference respectively to the lower punctum and the outer canthus; the pupil being the part of the eye used to mark the movement inwards; the outer edge of the cornea the movement outwards. In noting the case on paper, the diagrams of the positions of the two eyes should be placed on the same line, as if facing the observer; that of the right eye on the left hand side.

In each case the exact distance admits of being recorded. In this manner the relative strength of the internal and external recti of the two eyes may be estimated, and the result marked down in a single line, so as to show at a glance in which eye the preponderance of power of either muscle exists. After the operation another examination is made, and the result again marked down. We are thus enabled accurately to record on paper the amount of power the one muscle has gained and the loss the other has sustained by the operation, and this at successive periods in the history of each case.—*Lancet*, July 4, 1863, p. 8.

64.—ON STRICTURE OF THE LACHRYMAL DUCT.

By HAYNES WALTON, Esq., Surgeon to the Central London Ophthalmic Hospital.

[In the great mass of these cases we have evidence of a feeble bodily condition, or of struma; in fact, obstruction of the duct is of itself a strong mark of such a diathesis. The wet corner of the eye, the soppy eye-lashes, the redness and swelling of the integuments generally present much obscurity in the diagnosis. When there is doubt—because any of these symptoms are less marked—the effect of pressure with the finger on the sac upwards will be a sure guide. There is only one possible source of error, and this arises out of an obstructed puncture, because occlusion of the lower one causes effects similar to the early stage of a diseased duct, and the pressure test would fail. With the slightest doubt, therefore, the punctum should be well examined.]

A strictured duct requires to be mechanically treated, and as there is a morbid state of the canal, by which an accumulation of the secretion it causes merely interrupts the free passage of the tears, and which state may be reme-

died by constitutional and topical measures; and as there may be stricture, with but faintly apparent morbid action, and with little or scarcely any escape of new products or accumulation, when the sac is pressed, it often becomes a nice matter to diagnose between them. For many years I have sought for the indication in question; and now I rely on two simple facts as the most sure and unerring guides. These are the state of the canaliculi, and the condition of the parts about the lachrymal sac as conveyed to the touch.

When one of the canaliculi, especially the lower, is choked at the inner end, there is, as far as I have observed, almost invariably, stricture of the duct as well. Again, when there is decided thickening of the parts over and about the lachrymal sac, so that the edges of the bones cannot be felt as in health, there is that condition that needs dilatation. These rules have fewer exceptions than any that I know of. A profuse discharge, even of purulent matter, through the puncta, generally associated with stricture, is not in itself, as I have frequently ascertained by actual exploration, an unerring sign of obstruction. On the other hand, all degrees of narrowing of the duct, and even complete occlusion, may exist, without the escape of pus, and but little of any secretion.

It is the chief object of this lecture to show how to effect the process of dilatation in a strictured duct, because it demands special teaching.

I am quite satisfied that the mere occasional probing is not in itself sufficient. Besides, it is so tedious and so very disagreeable, that both public and private patients rebel against it. I may add that when there is really that degree of structural change which unequivocally calls for instrumental treatment, the wearing of a style is the less irksome, the more beneficial, and the quicker plan.

It is a great modern improvement to introduce the style through the canalicular entrance into the lachrymal sac, instead of the old plan through the skin on the face. I think that it may always be done, except when there is a lachrymal fistula, especially with necrosis. The method of doing it is this: The lachrymal director is passed into the punctum and along the canaliculus, till the point enters the sac, and rests against the lachrymal bone. With a fine scalpel this canal should be slit up in its whole length, and, as I think, a little of the sac as well. In certain instances, when, for example, a patient cannot be seen as often as I would wish, I introduce the style, if practicable, at once; but generally I effect it by a slower process, dilating the duct by degrees. Primary union is very apt to follow the operation on the canaliculus, in part or in whole, and the new channel should be reopened with the director or probe each day, till no longer required.

I generally explore the duct in the first instance with a tapering steel sound, and then with a small silver wire; and should there be much stricture, and some difficulty in reaching the floor of the nose, I do not withdraw the wire, but cut off the upper part and turn the end down on the eyelid with pliers in the form of a little hook. After a few days, the calibre of the duct is increased, and the style may be more readily introduced. The styles should be made of standard silver. The head should be curved into a hook, or wrought into a little tail, the extremity of which rests just over the eyelid. Several wires should be kept that the lesser might be employed till the largest can be used. Different lengths, too, are needed; for in each application the foot should reach the palatine process of the superior maxillary bone forming the floor of the nose. There is then no risk of the style slipping down; nor of the upper end producing irritation from pressure; nor ulceration, and so forming a false channel to rest on. Messrs. Weiss of the Strand keep all the instruments that I use.

The stricture may prove to be very tight—so dense, indeed, that it cannot be penetrated by the probe or the style. It must then be divided by the style-knife, which ought to be pressed down till the resistance is overcome.

The success of the entire proceedings rests on the accurate passage of the style. Liability to failure consists in the tendency there is to penetrate the lachrymal bone rather than in line of the duct. I know of no more common mistake in ophthalmic surgery than for a false passage to be made in attempts to

open the nasal duct, and to probe it; and the liability is still greater when the canaliculus is made the channel after the manner now described.

I can give no rules for guidance beyond those of acquiring anatomical knowledge of the part, which a single dissection on the dead body will afford; of exercising great care; and never to be satisfied that the right passage is reached, till the probe touches the floor of the nose; when the lachrymal bone is penetrated, the probe is passed into the fauces as far as it may be thrust.

From time to time the style should be removed and cleaned, and if it should ever become uncomfortable or irritating, the cessation of wear for a day or two generally makes it afterwards tolerable. Some patients wear it at night only. As to the duration of its application, I continue it until all inflammatory action has been subdued, which is indicated by an absence of all purulent or other secretion of an unhealthy nature from the duct.

I can declare that I have obtained an amount of success during the last five years which often astonishes me when I reflect on the nature of the cases treated. In the majority, I have had perfect results. In some, there has been immense amelioration, it being only at times when, perhaps, the conjunctiva is swollen from catarrh, that a little defective working in the excretory channel is felt. In some few, the reintroduction of the style for a few days, or longer, has been needed. In not a single case treated in my private practice have I failed to afford some substantial relief.—*British Med. Journal*, April 4, 1863, p. 344.

65.—ON THE USE OF TANNIN IN INFLAMMATORY AFFECTIONS OF THE CONJUNCTIVA.

By Dr. G. R. SHERATON.

[In inflammation the most conspicuous and evidently the most important morbid change is dilatation of the vessels of the part; hence in all tissues to which remedies directly counteracting this change can be applied, such remedies are found to be by far the most successful treatment. The first step is, probably, owing to the nerves supplying the capillaries; but the real damage is done by the effusions resulting from the capillary dilatation.]

Astringents are indicated on theoretical grounds, the *modus operandi* of which upon the living tissues is to a considerable extent mechanical by contracting the fibres and capillary vessels of the part to which they are applied, by which less fluid is admitted into them. But the astringents ordinarily in use, and derived from the mineral kingdom, are inadmissible during the acute stages, in consequence of the violent irritation they produce if applied directly to the membrane, except in a very ineffectual degree of dilution.

On these grounds, then, I have been led to employ tannin, which is probably one of the most powerful astringents, whilst its comparative freedom from irritation renders it a safe and effectual remedy for a class of cases which I have proposed. The manner which I employ it is in the form of solution of tannin, ʒj.—3ij. to aq. distil. ʒj.

A small portion of this is dropped into the eye, which at first causes a smarting sensation with a gush of tears, and which is succeeded by a dryness and a feeling of comfort. This is to be repeated three, four, or a dozen times a day, as circumstances require. The effect produced is soon made apparent; the distended capillaries seem to become unloaded of their stagnant contents, increased lachrymation, and muco-purulent discharge, if present, is checked, the organ becomes more fitted to perform its office, and the dependent constitutional symptoms are mitigated and disappear. I have now treated a great number of cases most satisfactorily in this manner without ever having had occasion to deviate from that course, in the slightest degree, when the result of external causes and unconnected with constitutional diathesis. Though chemosis, when present, seems to retard the progress somewhat, probably in consequence of the effused fluid for a time preventing its full con-

strictive influence upon the capillary vessels. Since I have been thoroughly convinced of the utility of tannin as a remedial agent in this class of cases, I have modified the mode of application to suit the exigencies of the various cases, *e. g.*, by its combination with some aqueous extract of a sedative drug, as solution of morphia, belladonna, opium, &c., to relieve the distressing pain, heat, and smarting that always to a greater or less extent accompany this disorder. I have also found it to be extremely useful during the acute stage of strumous, phlyctenular corneitis, removing the vascularity more expeditely than any other remedy that I have hitherto employed, and probably tending to contraction of the resulting ulcer, and by its combination with the aqueous solution of belladonna, &c., soothes and relieves the intolerance of light; though it has usually been my practice to employ the stimulating mode of treatment as soon as the fasciculi of vessels had disappeared. I have also been careful to secure a suitable regimen, and a dose of aperient medicine when such was deemed necessary.—*Medical Times and Gazette*, Sept. 12, 1863, p. 272.

66.—PRACTICAL OBSERVATIONS ON THE TREATMENT OF PURULENT OPHTHALMIA IN INFANTS.

By J. C. WORDSWORTH, Esq., Surgeon to the Royal London Ophthalmic Hospital.

[Numerous instances of the destructive tendency of purulent ophthalmia in infants must come before the notice of all engaged in extensive practice, yet the disease is one usually very amenable to treatment.]

Suppose a case of the disease in which it is confined to redness of the conjunctiva, especially of the lower lid, the mucous membrane being somewhat villous and prominent, and attended by some discharge of mucus or pus, and tears. This is the first stage. How may such be best treated? I should be content to have the eyes bathed frequently with warm water, by means of a small piece of linen cloth, to wash away the discharge; and afterwards, with an astringent lotion, containing four grains of alum in an ounce of water, and then wiped dry, and a little spermaceti ointment smeared on the edge of the lower lid, and the child put back to bed. A tea-spoonful of castor-oil may be given, if it have not already taken some aperient. If, in a few days, this does not terminate the treatment, I usually drop a solution of two grains of nitrate of silver in an ounce of distilled water on the conjunctiva twice a day. This rarely fails to produce a marked improvement in a few hours, especially if the discharge have become thin; the child opens its eyes and bears the light without inconvenience.

If the case have passed into the second stage—the lids being *red*, swollen, tense, and *shining*; the conjunctiva of the globe swollen, and raised round the cornea; the discharge profuse; and the child being hot, fretful, and restless—I apply a leech to each upper lid, and administer a grain of calomel at once. By means of the leech, the swelling is soon reduced, so that the cornea may be examined; and, independently of the antiphlogistic effect of loss of blood which is thus gained, the application of remedies to the conjunctiva can be more easily effected.

Fomentation of the lid is continued for some time, to encourage bleeding and soothe the inflamed structures. The child will usually be considerably reduced by the bleeding; and, being also relieved of pain, soon falls asleep. If the calomel do not soon open the bowels, a small dose of castor-oil may be given. The fomentation is renewed at short intervals; and, as soon as the case approaches the conditions of the first stage, the weak alum-lotion is substituted for the warm water; and this is again supplemented by the nitrate of silver drop, as this ceases to effect a cure.

I constantly find that the subjects of this affection are immature children of seven or eight months; and that the mothers are feeble and delicate women, incapable of providing a full supply of good milk. Under these circumstances, I prescribe quinine and iron for the mother, and thus indirectly influence the child.

The late Mr. Tyrrell introduced the practice of dividing the chemotic swelling by a series of radiating incisions round the cornea—a practice that since his time has, I believe, fallen into disuse. It is long since I have known it employed; but in his practice it seems to have been so satisfactory, that one could scarcely reconcile the disuse of it with one's duty, if a suitable case were presented. Yet I have no reason to think the practice of his successors at the hospital is less successful than that adopted by this excellent surgeon.

From considerable opportunities, I am persuaded that the plan above sketched is the most satisfactory and efficient for the treatment of this important disease. I do not doubt that, if more generally employed, it would conduce to diminish materially, if not to entirely check, the sad and irremediable consequences of purulent ophthalmia. It has also, to my mind, a great advantage over the cruel and unnecessary practice of applying stimulants to the tender and acutely sensitive little patients; and assuredly, in the cause of humanity, we should endeavour to avoid the infliction of an unnecessary pang, especially when we remember how acutely a sympathising mother suffers in witnessing these painful cases; and how heroic she must be, or neglect to apply the painful remedy that has been prescribed, when she sees the agony that its employment causes to her babe. Who can wonder, then, that such painful treatment is not fully carried into effect; and that, consequently, much risk is incurred by the attendants for the sake of saving the child's sufferings? Nor should we forget that the mother's health materially reacts on the child's; and, consequently, how necessary it is that she should be spared these painful emotions.—*British Medical Journal*, May 2, 1863, p. 452.

67.—CLINICAL REMARKS ON THE TREATMENT OF PURULENT OPHTHALMIA.

By ERNEST HART, Esq., Ophthalmic Surgeon to St. Mary's Hospital.

[This disease is so frequent, and the disastrous consequences are so great, if unchecked in its progress, that we ourselves always peruse with care any communication on the subject. The greater number of these cases are due to inoculation, by blenorrhagic matter from the mother; but neither on the one hand does every blenorrhagic mother infect her child, nor, on the other hand, does the disease arise in children solely from this cause.]

Mr. Hart fully confirmed the opinion which Dr. Thomas Ballard had lately strongly expressed, that the undue exposure of newly-born infants to strong light was a plentiful cause of the disease. Want of cleanliness was another. Moreover the affection appeared, like other forms of conjunctivitis, to be occasionally almost epidemic. The early symptoms of the disease were well known to all practitioners. A little swelling and redness of the lids externally, and of the conjunctiva internally, with a gumming of their edges, and an escape of a lemon-coloured fluid from between them, consisting of blood-pigment, serosity, and fibrin, diluted with the tears. The swelling and redness increase, and an abundant purulent secretion soon occurs. Sometimes ectropion ensues from the excessive swelling of the palpebral conjunctiva. If the disease be not successfully combated, corneal complications follow: infiltration at the edge of the cornea, and multiple ulcers; then death of the cornea, sloughing and escape of the lens, and staphyloma. This was the history, Mr. Hart observed, which might be deciphered in the blinded and staphylo-matous eyes of the child in the Victoria ward. But, happily, these results might be considered as very rare and unlikely to accrue, if proper treatment were adopted in due time. The disorder usually appeared on the third or fourth day. It was often sufficient at this time, when the lids were just become stiff and congested, to apply a cold lotion, which is very well borne; to see that the eyes were sponged with tepid water (so that a stream ran under the lids) every hour; and to apply to the edge of the lids with a little brush the following ointment, the object of which is to prevent them from

sticking together: citrine ointment, one drachm; olive oil, four drachms; lard to an ounce and a half. At the same time a laxative may be administered. When the symptoms are more strongly marked, and the purulent secretion established, more energetic means must be resorted to. The use of an alum lotion (four grains to the ounce) every hour, applied beneath the lids by a small sponge or syringe, is a very useful measure; and Mr. Hart said that in hospital practice, where he could not count upon seeing his little patient brought regularly and sufficiently often, and other attentions were commonly wanting, he had found this treatment by frequent irrigations with alum-water yield better results and more rapidly arrest the disorder than any other. Where, however, the mother will give proper attention, and in all private cases, he employed and strongly advised the application of *dilute caustic points* to the palpebral conjunctiva, followed by refrigerants externally. The *dilute caustic points* were prepared by melting nitrate of silver into stick with one or two parts of nitrate of potash. He had been furnished with points of different strength by Messrs. Savory and Moore. Thus the degree of cauterisation could be graduated at will. It was only necessary to pass the stick over the palpebral conjunctiva. The lid should be everted for the purpose, and a little brush impregnated with a solution of common salt passed over the surface immediately afterwards, so as to neutralize any excess of caustic; and then, as M. Wecker judiciously advised, the surface should be cleansed completely by the brush dipped in cold water. The effect of these cauterisations is startling in the success which attends them, if conducted with care and thoroughly performed. They need in most cases to be repeated several times, and in severe cases once or twice a day for a time. The inflammation soon assumes a healthy character. It is very rare to see any corneal complications, and the formidable consequences of the disease are avoided. Mr. Hart referred to other modes of treatment which have been recommended and employed: as, for instance, the instillation of strong nitrate of silver drops, &c., which he condemned; radiating incision of the conjunctiva, which he thought rarely necessary and sometimes mischievous; and excision of a portion of the mucous membrane, to which he was much opposed. The application of a strong solution of nitrate of silver to the lids by a camel's-hair brush, as recommended by Dr. Mackenzie, he thought was a useful resource where the solid dilute caustic points were not at hand, but when they were it was decidedly inferior.—*Lancet*, Sept. 5, 1863, p. 278.

63.—CATARRHAL OPHTHALMIA.

By DR. JAMES HENDERSON, Medical Officer to the Chinese Hospital, Shanghai.

Many cases of catarrhal ophthalmia presented themselves during the autumn. Neglected or left to run their course as all these cases are, many of them go on from bad to worse, and when they first appear at the hospital they cannot be distinguished from bad cases of purulent or gonorrhoeal ophthalmia; one or both eyes being often in imminent danger of destruction by sloughing of the cornea, or rapid ulceration. Chemosis is so great, as to overlap the eyelids, and also the greater part of the anterior surface of the cornea, leaving merely a transparent round spot in the centre, like an ordinary sized pupil, the eyelids are much swollen, there is constant purulent discharge, lachrymation and great pain. I tried the nitrate of silver treatment both in solution and in the solid form, with but indifferent success, ulceration commencing at the extreme margin of the cornea, the overlapping of the chemosis prevented the remedy from being properly applied, and doubtless, this is the main cause of many disappointments by this mode of treatment, opacity of the cornea and prolapse of the iris following.

Latterly, when such cases presented themselves, I began by dissecting off all the infiltrated mass of conjunctiva, round the whole margin of the cornea, and after allowing it to bleed freely, applying lightly solid nitrate of silver to the raw surface, then soaking a little cotton, in a solution of the extract

of belladonna, and applying it to the eyelids, the patients were put to bed, and perfect rest enjoined. This treatment has succeeded admirably, not having failed in a single case. It may appear a severe remedy, but to avert blindness, not too severe.—*Report of Shanghai Hospital, 1862, p. 8.*

69.—ON IRIDECTOMY IN DESTRUCTIVE ULCERATION OF THE CORNEA.

By ROBERT B. CARTER, Esq., Stroud, Gloucestershire.

[The value of iridectomy in destructive ulceration of the cornea, was first advocated by Von Graefe, and has been fully recognised on the Continent. It has not received so much attention here. G. R., a farm labourer, applied to Mr. Carter on account of an injury to his right eye eight days previously, by a blow of a twig. Loss of vision and great pain followed. He was a feeble, decrepit-looking man.]

I found the conjunctiva of the right eye so much injected, that a pterygium of long standing, on the nasal side, could scarcely be distinguished from the surrounding vascularity. The cornea was nearly perforated by a grey, sloughing ulcer, about three lines in diameter, surrounded by a zone of dense opacity. The ulcer not being perfectly concentric with the cornea, but situated somewhat towards its outer and lower margin, the zone of opacity reached the margin in this direction; while on the upper and inner side, above the pupil, it left a crescentic portion, which, although steamy and turbid, retained sufficient transparency to show the dark brown colour of the iris, but not to show its fibrous structure. There were no vessels proceeding to the ulcer, nor (except at the pterygium) encroaching upon any part of the corneal margin. Vision was limited to a dim quantitative perception of light, the patient perceiving the direction of the window, but not its outline, nor its sash-bars. There was severe pain, with nocturnal exacerbation, a feeble, quick pulse, and a worn, suffering aspect. The tension of the globe was not at all, or only very slightly, increased, and was certainly not greater than in the left eye, which, however, was already showing traces of sympathetic irritation. The injured organ had been covered by a folded handkerchief, but not treated in any way whatever.

Prior to experience of the good effects of iridectomy, it would have appeared to me certain, under the conditions I have described, that the impending perforation would be followed by iritis, probably passing on to complete disorganisation of the eye, and involving great likelihood of sympathetic destruction of its fellow.

I placed the patient upon a couch, and made an immediate iridectomy, removing the superior sixth of the iris. The pain of the operation was very acute; and, after applying Arlt's compress, I directed the patient to wait until the pain subsided. It was my intention to see him again, to prescribe an active tonic and sedative treatment, and to give him some general directions. As soon, however, as he became somewhat more easy, he left the house without my knowledge, and did not return until the following Sunday, the 8th of February. He then stated that all pain had ceased three hours after the operation, that he went back to work in the afternoon, and that he had deferred visiting me until Sunday, in order not to lose time. The compress had remained undisturbed, and, on removing it, I found the conjunctival injection much diminished, the section healed, the turbid crescentic portion of cornea cleared, the zone of opacity narrower and less dense, the ulcer receiving red vessels from below, and nearly filled up by plastic lymph. Perception of light had become qualitative, the patient being able to see a sheet of white paper.

As the case had done so well without medication, I re-applied the compress, and sent the man back to his work. On the 11th, the improvement being confirmed, and the patient able to count fingers, the compress was left off, and a band substituted for it. On the 22d, there remained very little

conjunctival injection, the vessels that repaired the ulcer had dwindled away; the place of actual excavation was marked by a well-defined dense cicatrix, its upper border just reaching to the centre of the natural pupil, and the rest of the cornea had regained perfect transparency. The patient could read No. 16 of Jaeger's test-types without assistance, or No. 14 by the aid of a ten-inch bi-convex lens, and I found that he could do very little more with the uninjured eye. Such a degree of amblyopia is not uncommon among elderly agricultural labourers, who, even when able to decipher simple words, never read, and who have never been accustomed to exercise their eyes about small objects of any kind. Their wives are preserved from a similar condition by using their eyes about needlework.

The patient was directed to discard all coverings from the eye, and to apply a mild astringent lotion (arg. nit., gr. ij., ad. $\frac{5}{2}$ j.) for the removal of the remaining conjunctival vascularity.

The case above cited is only singular from the absence, at first accidental, of medical treatment; and, this feature excepted, my note-book would furnish several of similar import. In all of them, however, iridectomy was followed by the administration of quinine, or bark and ammonia, with or without opium, and by the local application of atropine and poultices, so that I was unable to determine the precise curative influence of the operation itself. Still the operation has been the turning-point of every case, and the invariable precursor of rapid recovery. Before I practised it, I used to see occasional destruction of the cornea; but such a result has never followed its performance.

It must be confessed, I think, that we do not understand the *modus operandi* of iridectomy. In these corneal cases there is seldom increased tension, and there can hardly be (as suggested by Dr. Mooren in iritis) any retention of morbid matters behind the iris. A very complete division of the radiating fibres of the ciliary muscle is effected when the section for iridectomy is properly made, that is, when it is sufficiently far back, although the circular fibres are left intact. Is it possible that this division may produce a salutary change in the ocular circulation? The surgeons who practise division of the ciliary muscle by puncture seem to think that their procedure exerts some such influence. I tried it in a case of irido-choroiditis with marked, but very temporary benefit, and its repetition was not only useless, but a source of irritation. Shortly afterwards, I saw a patient in whom division of the ciliary muscle, by another surgeon, had been followed by extensive detachment of the retina—a result that the operation is obviously well calculated to produce. It is easy to conceive that the point or edge of the knife may itself detach and push inwards the retina in some cases, and that in others, hemorrhage or effusion under the choroid may produce the same effect. Since then I have entirely abandoned the operation, believing it to be, at the best, a very uncertain and imperfect substitute for iridectomy, and to be beset with many disadvantages and dangers from which iridectomy is wholly free.

The method of performing iridectomy is worthy of a passing notice. Mr. Bowman has sanctioned, by the great weight of his precept and example, such a rapid withdrawal of the knife as may produce a gush of aqueous humour, and a probable prolapse of the iris. Mr. Ernest Hart has recently advocated the same way of withdrawing the cutting-needle after the smaller incision required for artificial pupil. There is, however, among many operators of large experience a growing opinion that this gush of aqueous humour, and this prolapse of the iris, by the sudden shock to, and displacement of, the lens that they produce, are fertile sources of cataract after the operation, even where the anterior capsule has remained perfectly intact. Until this opinion be disproved, it will be safest to withdraw the knife with extreme caution, and to seize the iris by the introduction of proper forceps within the anterior chamber. This manœuvre is, to say the least, perfectly unobjectionable; it avoids a risk that may be actual, and that we cannot at present call chimerical, and it is perhaps more surgical than the more hurried and less careful *method of procedure*.

The precise steps of any operation must vary somewhat, however, in the hands of different surgeons; and the essential point is only to do the right thing at the right time. Scores or hundreds of elderly persons lose their eyesight every year by sloughing of the cornea, resulting from some trifling injury; and in all, or in nearly all of these cases, an iridectomy at any time prior to perforation would prevent the threatened mischief. The sufferers are mostly labourers, stone-breakers, hedge-trimmers, and so forth, who can seldom procure the services of an ophthalmic specialist; and it is in the hope of calling the attention of my brethren generally to a simple and effectual means of cure, that I have ventured to seek publicity for my fragment of experience in the matter.—*Medical Times and Gazette*, May 16, 1863, p. 503.

70.—ON THE EFFECTS OF THE SOLUTION OF THE CALABAR BEAN ON THE ACCOMMODATION OF THE EYE AND ON THE PUPIL.

By Dr. J. SORLBERG WELLS, Ophthalmic Surgeon to, and Lecturer on Ophthalmic Surgery at, the Middlesex Hospital.

[Professor Christison several years ago read a paper before the Royal Society of Edinburgh on the properties of the Calabar bean; and recently Dr. Argyll Robertson called the attention of the Edinburgh Medico-Chirurgical Society to the interesting fact that the Calabar bean possesses the peculiar property of stimulating the sphincter pupillæ and the ciliary muscle to contraction.]

Messrs. Bell & Co. having some weeks ago kindly procured for me some of the beans from Edinburgh, and prepared some solutions of various strength, I have been enabled to make repeated experiments with the extract, the results of which have fully borne out Dr. Robertson's experience. I gave a portion of the strongest solution (one minim of which corresponds to four grains of the bean) to Mr. Bowman, and at his request applied a little to his eye, and he has kindly furnished me with the following valuable notes of his personal experience of its physiological effects:—

"We are much indebted to Dr. Robertson for calling attention to the influence of the Calabar bean on the ciliary muscle and on the iris. His paper is conclusive as to the reality of these effects, and my friend, Mr. Neill, of Liverpool, informs me that he has found the pupil to be contracted by it even in cases of dilatation of the pupil, the result of injury. This would seem to imply a direct specific action on the circular muscular fibres of the iris, and if so, in all probability also on the tissue of the ciliary muscle,—an action of stimulation producing a result the precise reverse of that of atropine.

"I gladly took advantage of the solution of the bean which you brought me, and of your offer to note its effects on my eye. The inside of the left lower lid was touched at 5.5 p. m., on April 30, with, I suppose, about a tenth part of a minim of the solution. Both my eyes are alike in optical power, and are in all respects normal. The pupils had a diameter of rather more than one line. The contact caused a slight smart for a minute.

"In five minutes (5.10) I experienced a decided tight feeling referable pretty accurately to the ciliary region of that eye, as if something were creeping about in it.

"In ten minutes (5.15) this continued, together with occasional rather sharp pains in the ciliary region. An attempt to read with both eyes instantly increased this pain, and the type was confused, as if by a disturbance of the power of accommodation.

"In thirteen minutes (5.18) the near point of the left eye (Jaeger, No. 1) was at six and three-quarter inches, that of the right eye being fifteen inches, thus indicating a spasm of accommodation in the left, and a diminished power in the right eye. With this change, the effort to look at the type or optometer with either eye, or with both, much aggravated the sense of distress in the left eye. The type looked smaller with the right eye than with the left. The far point seemed the same as before in each eye.

"In twenty minutes (5.25) I could see Jaeger 17 at fifteen feet, but with the left eye with a remarkable oscillation in the distinctness, so that the type came and went, at one instant quite clear, then indistinct, which coincided with the sensations present in the ciliary region, as if the ciliary muscle was undergoing irregular contractions. The left pupil was now observed to have become rather suddenly contracted to the size of a large pin's head; and to avoid repetition, I may state that this contraction continued to the full amount for eighteen hours, then gradually relaxed during about three days, after which it was like its fellow. As it gradually dilated, it also resumed gradually its mobility under light, whether falling on its own or the opposite retina, or on both. With the sudden contraction of the pupil came also a sudden twilight gloom, as of an eclipse of the sun, much more marked when the left eye only was open. But this gloom soon lessened, owing, probably, to the retina, by continuance, becoming accustomed to the quantity of light admitted, and on the next day it was hardly noticeable.

"In twenty-five minutes (5.30) the pupil being extremely small, we noted the astigmatism. The vertical bars of a window were seen clear and sharp at from six to ten feet, the horizontal bars within the same range having thin edges, slightly hazy, but rendered clear by a concave cylindrical glass of fourteen inches focus suitably placed. Distant objects seen by the left eye through a concave spherical glass of fifty inches focus were very decidedly diminished in size.

"In thirty minutes (5.35) the near point by No. 1 of Jaeger was for the left eye at six and a half inches, for the right eye only at ten and a half inches, not nearer or further off, and even at this distance indistinct, whereas with the left eye the letters were crisp and clear. To this better sight of the left eye two causes contributed,—the larger size of the retinal image from greater nearness of the type to the eye, and the smallness of the pupillary aperture. With the left eye the near point for vertical lines was at eight and a half inches, for horizontal lines at six and a half inches. With the right eye the near point for vertical lines was at eleven and a half inches, for horizontal lines at seven and a half inches. The strained feeling of the left eye was less after half an hour, but did not quite cease till the next morning. The attempt to read continued somewhat painful all the evening, and even next day both eyes were somewhat uneasy in sustained vision of near objects, with both eyes or either of them.

"Eighteen hours afterwards (noon on May 1) both eyes were alike as to accommodation, and in both the near point for vertical and horizontal lines was one inch nearer the eyes than natural, viz., for horizontal lines near point seven inches, vertical lines near point nine inches; and at twenty-four feet each eye could read No. 18 of Jaeger, only the letters were more sharply defined with the left, and looked rather smaller. The pupils were then,—

The eyes in shade, R  L ; in the light, R  L .

"By way of comparison I accurately examined the accommodation for horizontal and vertical lines with each eye on May 9, and found both eyes alike; the near point for horizontal lines being nine inches, and for vertical lines, ten inches for each,—one inch more remote from the eye than after eighteen hours from the instillation of the solution of the bean."

[Mr. Wells then passes on to the description of a case of paralysis of the circular fibres of the iris, and of the ciliary muscle of the right eye (the left being perfectly normal). This case afforded an excellent opportunity, not only of fully testing the efficacy of the bean, but of making parallel and comparative experiments upon the two eyes, and watching, step by step, its effect upon the healthy and the paralysed structures.]

These experiments illustrate most fully the peculiar action of the Calabar bean upon the size of the pupil and the accommodation of the eye. Not only was the pupil of the healthy eye rapidly contracted, but even the paralysed pupil, which, before the application, measured three and a half lines, was contracted to two-thirds of a line (the size of a pin's head) within half an hour after the instillation of the extract. The maximum of contraction of the pu-

pil was the same in each eye, but the left regained its original size sooner, it also always remained active under the influence of light, whereas the right was quite immovable. The sight of the right eye also rapidly improved, for within a quarter of an hour of the application she could read with it the very finest print, and this whilst its pupil was two and one-third lines in diameter. The effect upon the ciliary muscle was more marked in the left than in the right eye, for in the former the near point was approximated to three inches, the far point to five and a half inches; in the right eye the near point was never brought closer than eight inches, nor the far point nearer than eleven inches. Stronger concave glasses were consequently required for distant objects by the left than by the right eye. The effect upon the accommodation also ceased much sooner in the right than in the left eye, for in the former the myopia had disappeared five hours after the application, whereas six days afterwards the sight of the left eye for distant objects was still improved by a concave glass of thirty-six inches focus.—*Medical Times and Gazette*, May 16, 1863, p. 502.

71.—ON THE ORDEAL BEAN OF CALABAR.

By Dr. THOMAS R. FRASER, Assistant to the Professor of Materia Medica, Edinburgh University.

Preparations.—The powdered kernel may be exhausted by spirits of wine, of proof or rectified strength.

Water and acetic acid have not been satisfactorily shown to dissolve any of the active principles. A few trials were made with both, and the results were that, by the process of percolation, efficient preparations could be obtained with neither; the infusion, by maceration with water, suspended such variable quantities of the starchy and leguminous constituents as to be quite unfit for any experimental purpose.

Rectified spirit has been usually employed as the menstruum in the therapeutic portion of this investigation, and a tincture of known strength was uniformly administered. The following is the formula for its preparation:—Take of the kernel, in the form of fine powder, $\frac{3}{4}$ j; rectified spirit, $\frac{3}{4}$ ij. Place the kernel and one ounce of the spirit in a carefully covered vessel, and allow to remain for forty-eight hours. Pack in a percolator, pour in what spirit may be left in the vessel, and add the remaining ounce of spirit. When this has ceased to escape from the percolator, pass as much more spirit through as may be required to obtain two ounces of a golden yellow tincture.

This preparation is so far objectionable, that the kernel is not exhausted by the quantity of spirit used; yet it appears preferable to one obtained by reducing to a certain standard, by distillation, a tincture obtained with a much larger proportion of spirit.

I have found five minims of this tincture a good dose with which to commence the administration. This appears to possess the activity of three grains of the kernel, as far as can be judged by the effects produced. The dose may be trebled without pushing the physiological action to any extreme. The kernel can only be exhausted by employing a much larger proportion of spirit. By using twelve ounces of rectified spirit with one ounce of powdered kernel, distilling off about eight ounces, and evaporating the remainder, first to a syrupy consistence, in a vapour-bath, and then by spontaneous evaporation, twenty-one grains of an extract of considerable consistence may be obtained, or a proportion of 4.375 per cent. This extract has a deep brown colour, and a peculiar, sweetish, and disagreeable odour, for which I can find no comparison. Its actions differ only in intensity from those of the kernel and tincture.

In the physiological portion of this investigation, the syrupy extract mentioned above was largely employed, and it is one of the preparations recommended in the application of *Physostigma* to ophthalmic medicine. A pre-

paration has also been employed of the extract evaporated to a firm consistence, and partially dissolved and suspended in distilled water. I have used such a preparation, obtained by acting with one drachm of distilled water on five grains of firm extract, representing 120 grains of the kernel, one minim of which possesses the activity of two grains of the kernel. Of this a small drop, rather less than a minim, will maintain a contracted condition of the pupil for five days. This preparation has the objection of being extremely inelegant, as a large portion of the extract is not dissolved, and renders the fluid muddy.

Therapeutical uses.—We are entitled to infer that the important physiological actions of the kernel of *Physostigma* may be employed with the greatest advantage in the treatment of disease.

Its special action on the spinal cord, and the result, though not entirely conclusive, of the experiment with this substance and strychnia, seem to indicate that it may be of service in all hyperæsthetic conditions of the cord. In tetanus, whether *centric* or *eccentric*, the morbidly excited condition of the spinal system may be allayed. In epilepsy, the investigations of Schröder van der Kolk have so far determined the accompanying pathological changes, that we would be even more sanguine of success from its employment. The *sedative* action on the heart will also, very probably, prove of service. Five minims of the tincture usually shows an influence on the circulation; but in almost every case this dose has been required to be considerably increased before a decided and permanent effect could be produced. When administering it with this view, I have been principally guided in my selection of cases by the condition of the pulse,—a pulse in any wise feeble being considered a decided contra-indication, while one that was strong, rapid, and hard, was considered a true indication for the employment of the tincture. I have found this action of value in erysipelas, delirium tremens, febricula, acute bronchitis, and rheumatic fever, and have detailed a few cases from a number in which this treatment was tried.

The *Anæsthetic action* may be applied to the treatment of all nervous irritations. I have employed it with great advantage in various neuralgic affections, and in irritable stomach. It probably acts by producing a local change in the nerves of the affected region, which interferes with their power of receiving or of conducting impressions. That it does not depend on any constitutional action of the kernel appears probable from the absence of any appreciable constitutional symptom.

An agent can remove painful impressions in only three ways,—1st, by an influence exerted on the tissues which cause the pain by their abnormal connexion with the sensitive nerve,—as in the swelling of inflammation; 2nd, by an influence exerted on the organ which receives the impressions,—the cerebrum; and, 3rd, by an influence exerted on the sentient nerve-fibre itself, or on its power of conducting sensation. We have no facts to support the first cause of the sedative action in the present instance, and it is extremely improbable; the second is disproved by the absence of cerebral symptoms; and every probability exists in favor of the last. I have employed both the tincture and the alcoholic extract, the former seeming to me the preferable form of application. Half a drachm to one drachm of the tincture, rubbed on the seat of suffering for fifteen minutes, will remove severe pain for an interval of about two hours, and an ultimate cure may be produced by repeating the application for a limited number of times.

[There is no proof of *Physostigma* possessing any *Hypnotic* properties.]

A *topical action* which will prove of some service is the influence exerted on the pupils. The power which *Physostigma* possesses in contracting the pupils, when applied immediately to the eye, is very great; and the discovery of this is the more important, as no substance was previously known to have such an action. In mydriasis, whether dependent on the over-action of belladonna, or as a symptom of amaurosis, especially the hydrocephalic variety; in the treatment of iritis, and of inflammations of neighboring structures, where the prevention of adhesions may be more successfully secured by an alternation of contraction with dilatation than by dilatation

alone; in all cases in which a change in the position of the iris is indicated, as in injuries of the eyeball, with displacement of the iris; as well as in many other cases which will suggest themselves to the ophthalmist, this agent deserves, at least, a trial. The local application is followed by no inflammatory symptoms, and should therefore be preferred to the usual stimulating applications which have been employed to produce contraction. I should recommend for this purpose the alcoholic extract, in the form of either the syrupy extract, or the more concentrated extract mixed with a definite proportion of water.

This preparation, however modified, must be always, to a certain extent, uncertain in the degree of its action, but this is no important objection, as the contraction of the pupil can be produced by a very minute portion of the syrupy extract. The only caution is to employ as small a quantity as possible.—*Edinburgh Med. Journal*, August, 1863, p. 123.

72.—ON THE CALABAR BEAN AS A NEW AGENT IN OPHTHALMIC MEDICINE.

By Dr. D. ARGYLL ROBERTSON, Lecturer on Diseases of the Eye, Edinburgh.

[We give the following extract from an able paper by Dr. Robertson on this new and apparently very important remedy. It shortly but clearly points out the cases in which it is likely to prove of use in practice.]

As regards the cases in which this substance may be applied in practice, it is applicable in all instances where atropine is used to render the examination of the eye more perfect or more simple. This includes two classes of cases, those in which dilatation of the pupil is either necessary or desirable to aid ophthalmoscopic examination, and those in which paralysis of the ciliary muscle is necessary, in order to ascertain the state of the accommodation of the eye.

In cases of retinitis, with photophobia, I think it might be advantageously employed to diminish by contraction of the pupil the access of light to the retina, and this more especially in those cases of this disease where the pupil has been dilated for the purpose of ophthalmic examination.

The cases, however, in which I should expect this remedy to produce the most beneficial effects are those in which paralysis of the ciliary muscle occurs as a consequence of long-continued debilitating disease. Cases of this kind are occasionally reported as following attacks of typhus or other fevers. The dimness of vision that forms a frequent sequela of diphtheria appears also to be due to this cause, judging from the symptoms detailed by Dr. Begbie in an admirable paper on diphtheria, recently published in this *Journal*; therefore, in these cases, good effects may be expected from the use of the Calabar bean.

In cases of ulceration at the margin of the cornea, leading to perforation, or even when prolapsus of the iris has just occurred, as well as in cases where the iris has a tendency to protrude through a corneal wound, the contraction of the pupil induced by this agent might prove serviceable by drawing the iris away from the circumference.

I have shortly pointed out the cases in which I consider this remedy may prove useful, but have as yet had but little opportunity to test it practically; I think, however, there can be little doubt that in the Calabar bean we possess an agent that will soon rank as one of the most valuable in the ophthalmic pharmacopœia.—*Edinburgh Medical Journal*, March, 1863, p. 820.

73.—ON THE EMPLOYMENT OF THE ALKALOID OF THE CALABAR BEAN IN PROLAPSUS OF THE IRIS.

By THOMAS NUNNLEY, Esq., Surgeon to the Leeds Eye and Ear Infirmary.

[The great reason why wounds of the cornea and margin of the sclerotic are so unsatisfactory in their termination, is, that the iris so frequently prolapses and severe inflammation results.]

Many plans have been suggested for disengaging the prolapsed iris, which, though occasionally successful, far more commonly fail. It occurred to me that if the iris could be kept for some hours on the full stretch, by the almost entire contraction of the pupil, it would not prolapse, and thus the corneal wound might heal by the first intention. The result of two cases in which I have employed the alkaloid (for such I presume it to be) of the Calabar bean is most satisfactory, and would quite justify the belief that if a case be seen immediately after the infliction of the injury, before prolapsus has taken place, or, even though this has happened, before adhesion has occurred, the iris may be kept out of the wound, and this will then heal as after a surgical wound. The two cases were as unfavorable as possible, and the results have been far better than I could have anticipated.

T. B., aged thirty-three, a boiler maker, *twelve days* before I saw him, while driving in a red-hot rivet, was struck by a small splinter from it, which passed through the left upper eyelid and made a wound in the sclero-corneal junction, through which protruded about a fourth part of the iris. The whole globe was very vascular and irritable; sight was considerably impaired; but the lens did not appear to be implicated, as far as could be judged in the hazy state of the cornea. A small quantity of the extract was blown from the capillary tube, in which it was contained, upon the conjunctiva; within two minutes contraction of the iris began, and in ten minutes the pupil had become small, circular, and central, while the nodule of prolapsed iris had lessened to one-third of its former size. For three hours the effect continued, at twelve hours it had somewhat lessened, and at twenty-four hours had considerably subsided, when another portion of the extract was blown in. The iris at once contracted to the same extent as it had done on the first application, and never again so fully dilated. The pupil remained in a much better position and of a better size. All had been withdrawn from the wound that had not become adherent.

A. S., aged seven years, had the lower margin of the cornea punctured with the point of a knife eighteen days before I saw him. The iris protruded considerably, though not to the same extent as in the man; and the introduction of the alkaloid was at once followed by the partial withdrawal of the iris from the wound and the diminution and centralization of the pupil, but not so completely as in the first case, occasioned probably by the less perfect application of the extract, as the boy was very frightened, struggling and crying, so that the little that did get upon the conjunctiva was washed out by the tears. Twenty-four hours afterwards, when the effect had subsided, a more perfect introduction of the extract caused, within fifteen minutes, the pupil to become round, central, and not larger than a pin's head.

In neither case was the least pain or irritation caused; indeed, the effect might be considered soothing, as the vascularity and photophobia materially diminished. No other treatment was adopted for forty-eight hours, in order that the effect might be uninterfered with; and the subsequent progress of both cases was quite satisfactory. The distortion of the pupil and the myocephalon are far less than I have ever seen under similar circumstances, leading to the inference that had adhesion not taken place before the cases were seen the iris would have been restored to its normal condition in each person.—*Lancet*, July 18, 1863, p. 65.

74.—CASE OF MYDRIASIS TREATED BY THE SOLUTION OF OLD CALABAR BEAN.

Under the care of ERNEST HART, Esq., Ophthalmic Surgeon to St. Mary's Hospital.

Mr. Hart in calling attention to this new agent said that the need for such an agent had long been felt in ophthalmic surgery, and that he had been experimenting for some time with various substances of which he had hoped that the local application might produce contraction of the circular fibres of the iris. With this view he had employed solutions of various alkaloids in glycerine, including morphine, strychnine, digitaline, and ergotine, but the results were not satisfactory.

The original investigator of the properties of the bean was Dr. Christison, who had read an account of those properties before the Royal Society of Edinburgh on Feb. 5th, 1855, in an important paper reprinted in the *Pharmaceutical Journal* in 1855; and subsequently Dr. Fraser had treated of it in his inaugural thesis. It was one of the most powerful poisons, possessing a direct control over the action of the heart, but not paralysing volition. Its systemic effects somewhat resemble those of aconite. The active principle had not yet been isolated; but Mr. Hart stated that he believed Dr. Christison was engaged in an effort to procure it; the difficulty at present was due to the scanty supply of the bean. It was held in great veneration by the natives of Calabar as an ordeal poison and was not yet to be obtained in commerce.

Mr. Hart showed the effects of the solution prepared of different degrees of strength. They had been prepared as a watery solution of the alcoholic extract of the bean according to the direction of Dr. Argyll Robertson; that in which one minim corresponded to three grains of the bean answered best. It counteracted the effects of a solution of atropia, of three grains to the ounce, in dilating the pupil—inducing recontraction. Hence it is an agent of great utility in removing the inconvenience of dilatation of the pupil for the purpose of ophthalmoscopic study. Dr. Argyll Robertson had informed Mr. Hart in a letter, of the tendency of the watery solution of the alcoholic extract to decompose. This decomposition occurred very rapidly, the solution becoming in a few days pink in colour (instead of being colourless) and fetid. It was arrested by the addition of glycerine to the watery solution. But Mr. Hills—of Messrs. Jacob Bell & Co.'s—had found that the alcoholic extract was soluble in glycerine, or apparently so; and Mr. Hart was now using the glycerine solution. This might prove to be a chemical solution, while the other certainly was not.

The action of the Calabar bean in counteracting mydriasis was well shown in several cases: one of partial mydriasis from paralysis of the third nerve, and one of the same condition from excessive debility after fever and accompanying asthenopia. Its power as an antagonist of atropine is equally shown by the firm contraction of the pupil and accommodative changes which it produces in the normal eye. Its action is, however, less durable than that of atropine; and if it be desired to make use of its curative effects in cases of mydriasis, Mr. Hart thought it would be found desirable to repeat the drop every four hours. Sometimes its instillation caused slight irritation; but there was often none at all.

In conclusion, Mr. Hart said he had been the first who had employed this agent in London, but that he should abstain from publishing at length his observations on the physiological and therapeutic effects of the drug, considering that Dr. Argyll Robertson, who had introduced this agent, and had with great care and sagacity at once investigated its powers and foretold its uses, should be allowed to gather the first fruits in this interesting field of observation, which was his own by right of discovery. He would say that his observations completely confirmed those which that gentleman had already published.—*Lancet*, May 30, 1863, p. 604.

75.—OBSERVATIONS ON SOME OF THE EFFECTS OF THE APPLICATION OF THE CALABAR "ORDEAL BEAN" TO THE EYE.

By Dr. JOHN W. OGLE, Assistant Physician and Lecturer on Pathology at St. George's Hospital.

As the observations, first of all made by Dr. Fraser, and extended by Dr. Robertson, on the effects of the Calabar "ordeal" bean upon the eye will no doubt attract (and most deservedly so) very considerable attention, I have thought it might prove of interest to place on record the results of some of the experiments which I have been induced to make with the same agent. In the present communication I will notice only the results which I have found to be produced by its application upon the *pupil* of the eye, not wishing to interpolate any mention of such effects upon the power of vision, the "accommodation of the eye," as were manifested at the same time.

I was, in the first place, naturally wishful to determine for myself the fact that the healthy and active pupil of the eye could be made, at will, to contract by the application of this agent; and the following experiments were therefore instituted at the onset.*

Experiment 1.—A young woman, aged twenty-four; the sight of whose right eye was so far impaired that she could only distinguish light from darkness. The left pupil was of the ordinary size, and moderately active; the right one was very sluggish under the action of light, and much larger than its fellow.

I applied a single drop of my weakest solution (No. 1) of the Calabar bean between the eyelids of the right eye at 1.25 p. m. I found at 1.55 that the pupil, which before had been considerably larger than that of the other eye, had become so contracted that it was only of about half the size of the other one. How long it remained so contracted, I am unable to say.

Experiment 2.—A woman, aged fifty-one, with both pupils equal, acting but sluggishly under light, and both of them smaller than natural and healthy pupils generally are. I applied one drop of my No. 1 Calabar bean solution between the lids of the right eye at 1.40 p. m.; and at 1.55, the pupil was only half as large as that of the other eye.

Experiment 3.—A man, aged fifty-three, paraplegic; with the pupils of both eyes equal, of moderate size, acting well under light. I applied one drop of my No. 1 solution between the lids of the right eye at 1.32 p. m. No visible change in the left pupil was perceptible at 1.40. It had become slightly contracted at 1.55; and it was contracted to half the size of its fellow at 1.58. It was less than half as large as its fellow at 2 p. m.; and at 2.5 this pupil was only about equal to a pin's head in size, the pupil of the other eye having become larger than it previously had been.

Wishing to ascertain how long the contraction of the pupil produced by the Calabar bean would remain, when no means were used for again dilating it, I made the following observation.

Experiment 4.—A boy, aged five years and nine months, strumous, with both pupils equal, both very large and mobile under the action of light. I applied a single drop of the weakest solution (No. 1) of the bean between the lids of the right eye at 1.42 p. m. No visible change in the pupil had occurred at 1.50. At 1.62, the pupil had contracted to the size of a pin's head. I saw the boy again at 10.30 p. m., and found that the pupil was very contracted, but not to so great a degree as at the hour previously mentioned. On the following morning, at 10.30 a. m., I again examined the boy's eyes,

* I have had four preparations of the Calabar bean made for me by Messrs. Bullock and Reynolds. First, a watery solution of a spirituous extract, of which one minim was equivalent to two grains of the bean (No. 1); secondly, a similar but stronger solution, in which one minim was equivalent to four grains of the bean (No. 2); thirdly, a strong spirituous extract, of which fifteen grains were equivalent to four hundred grains of the bean (No. 3). In the use of the former two, I dropped the solution, by means of a camel's-hair brush, between the eyelids: the latter (the extract) I used by first moistening it with water, and then smearing it over the inner surface of the lower lid. The fourth preparation of the bean which I have had made is a paper saturated with a solution, analogous to the atropine paper of Mr. Stentfeldt. This Calabar bean paper I have not yet tried, or made use of.

and found that the pupil was still contracted, but only to a slight degree, and was almost as large as the pupil of the other eye.

Having thus added a proof, and as I think a satisfactory one, that we have a ready means in the Calabar bean of expeditiously, and with tolerable, but not very great, permanence, contracting the pupil, I made the following experiments, with a view of proving its power of effecting contraction of the pupil which had been previously decidedly dilated by atropine. This I was particularly desirous of doing, inasmuch as I have constantly felt the want of the means of contracting the pupil, after I have had it widened by atropine or belladonna for the purpose of ascertaining by the ophthalmoscope the state of the deep vessels of the eye in cases of albuminuria, supposed disease of the intracranial parts, &c.

Experiment 5.—The same patient as in the case of Experiment No. 2, with naturally small pupils. Between the eyeball and the lower lid, I introduced a portion of Mr. Streatfeild's "atropine paper," equal to half a drop of the two-grains-to-the-ounce solution (*i. e.*, half of one of the squares) at 12.53 p. m. At 1.12, the pupil was very fully dilated. At 1.31, I applied a little of the strong extract of the bean (which I have before spoken of as No. 3). At 1.40, no contraction of the pupil had been produced, and I then applied some more of the strong extract. At 2.0, there was still no change in the pupil; but at 3.20, the pupil had become reduced to the same size as its fellow. Whether, and to what extent, it became still further contracted, I had no opportunity of judging.

Experiment 6.—A man, aged thirty-six, with both pupils equal, of natural size, acting well to light. I applied between the lids of the right eye one drop of the atropine solution (two grains to an ounce) at 12.7 p. m. At 12.30, the pupil was fully dilated, and I then smeared a little of the moistened extract of the bean on the lower lid. At 1.15, I found that the pupil was beginning to contract. At 1.30, as I found that contraction was not progressing at all quickly, I again applied some of the extract. At 2.0, the pupil was reduced in size to that of the opposite eye. I had no opportunity of ascertaining whether it contracted still further.

Experiment 7.—A man, aged thirty-six, whose pupils were of moderate size, and equal and acting well to light. I applied half a drop of the same atropine solution as in the former case, at 12.7, between the lids of the right eye. At 12.30, the pupil was fully dilated, and I then smeared on a little of the moistened extract of the bean. At 1.13, the pupil was beginning to contract; and at 2.0, the pupil was of the same size as its fellow. How long it so remained I know not.

Experiment 8.—A man, aged forty, with pupils equal, of moderate size, and acting well to light. I applied half a drop of the above used atropine solution at 12.10 p. m. At 12.30, the pupil was fully dilated. I then smeared on the lid some of the extract of the bean; and at 2.0 the pupil was so far contracted as to be almost, but not quite, as small as its fellow.

Experiment 9.—A strumous boy, aged nineteen, with pupils equal, of moderate size, and acting well under light. I applied one drop of a solution of atropine of the strength of two-thirds of a grain to an ounce of water between the lids of the left eye, at 12.16 p. m. At 12.47, the pupil was considerably, but not fully, dilated, and at 12.58 it was fully dilated; I then smeared on some of the extract of the bean. At 1.25, the pupil had not become at all altered, and I then applied more of the extract. At 1.45, both pupils were equal.

Experiment 10.—A young man, with pupils equal, moderately large, and acting well under light. I applied one drop of the atropine solution (two-thirds of a grain to an ounce) at 12.30 p. m. At 12.47, the pupil was beginning to dilate, and at 1.25 it had become much dilated. I then applied some of the extract of the bean over the inner surface of the lower lid, and at 2.38 both pupils were quite equal again.

I was now anxious to know if it would be easy, by means of the Calabar bean, to control the pupil which had been for some time left in a state of dilatation produced by atropine, and for this purpose I made the following observations:

Experiment 11.—A middle-aged man, with pupils equal, moderate as to size, and acting well under light. I applied one drop of the atropine solution (two grains to an ounce) between the lids of the right eye at 1 p. m. At 1.30, the pupil was fully dilated. At the end of a week, I found that the pupil was still very greatly dilated; and at 1.5 p. m., I applied some of the extract of the bean. At 1.20 the pupil was contracted to the size of a pin's head. I then applied one drop of the atropine solution (two grains to the ounce) between the lids, and at 2.31 both pupils were again equal.

Experiment 12.—A middle-aged woman, with pupils active, equal, of ordinary size. The pupil of one eye was widely dilated with one drop of the atropine solution (two grains to an ounce); and, after the lapse of a week, the pupil was found to be still freely dilated, though not so widely as in the week previously. At 1.15 p. m., some of the extract was applied between the eyelids. At 1.20 the pupil was contracted to the size of a pin's head.

Experiment 13.—A middle-aged woman, with pupils of equal size, larger than usual, and active. I fully dilated the pupil of the left eye with one drop of the stronger solution of atropine (two grains to an ounce). At the end of a week, the pupil of this eye was still about one-third more dilated than its fellow. At 1 p. m., I applied some of the extract of the Calabar bean on the inner surface of the lower lid. After the lapse of only *twenty minutes*, the pupil of this eye had become reduced in size to that of a pin's head. Possibly this effect was produced much earlier, but I was unable to ascertain how much sooner it had followed the application of the extract, as the patient had left me and did not return earlier.

The following experiments show how readily the pupil, after being contracted by the Calabar bean, becomes again dilated on the application of the atropine solution.

Experiment 14.—A young woman, the same as mentioned in Observation No. 1, had the stronger aqueous solution of the bean, before described as No. 2, applied between the lids of the right eye at 1.53 p. m. I did not see her until 2.20, when I found the pupil of this eye reduced to the size of a pin's head. At 2.30, I applied one drop of the atropine solution (two grains to an ounce). At 2.43 no alteration of the pupil had followed; but at 2.50, the pupil had become much dilated; and at 3.5, still more dilated. At the end of a week, the pupils were found to be equal in size.

Experiment 15.—A woman, of middle age, with pupils equal, moderate in size, but rather inactive on application of light, having the arcus senilis in both eyes. Between the lids of the left eye, a drop of the weaker solution of the bean (No. 1), which was now some days old, was applied at 12.56 p. m. At 1.12, no change had occurred; and a drop of the stronger solution (No. 2), which was more recently made, was applied. At 1.16, the pupil was slightly contracted; and at 1.36, very much so. At 1.40, I applied one drop of the stronger portion of atropine (two grains to an ounce); and at 2.10 the pupil was becoming decidedly larger in size. At 2.15, it had attained the same size as its fellow.

In one or two other experiments, which I need not detail, I found that contraction of the pupil which had been dilated by atropine did not at all, or only very partially, follow the application of the Calabar bean solution. In some cases this might be explained by the fact of the iris having been at a previous occasion the subject of disease, and the muscular fibres having thus become altered in character; but I am inclined to think that it was owing to greater disproportion having existed between the strength or quantity of the solutions of atropine and Calabar bean which were used. It appeared to me that some of the Calabar solution, which was a simple watery one, was decidedly weaker in action after having been made some time.

It may be gathered from the above experiments, that we have in the Calabar bean a ready and effective agent for producing contraction of the natural pupil: and also of neutralising the effects on the pupil produced by the application of atropine or belladonna to the eye (which generally remain for a great length of time, and frequently prove a subject of much complaint, by the resulting interference with vision and disfigurement—or, as some would

say, the improvement—of countenance). A little trouble and attention will be required in adjusting the strength of the Calabar bean solution on the one hand, and the atropine solution on the other; but when the proportionate strength of the two antagonising solutions has been determined as nearly as possible, making allowance for individual differences as regards the relative strength of the sphincters and dilators of the iris, dilatation for ophthalmoscopic and other purposes may be at any time resorted to with the certainty of a speedy return of the pupil to its natural state. I am convinced that, for ordinary ophthalmoscopic purposes, one quarter of a square of Mr. Streetfeild's atropine paper introduced beneath the lower lid is sufficient to effect the required purpose, and this should be removed as soon as dilatation commences. But even if, from want of due adaptation, the contraction of the pupil should have been too vigorously carried out by the Calabar bean preparation as counteractive of the atropine dilatation, experiment shows me that this state of contraction is much less troublesome to the patient, and also lasts a much shorter space of time than does the dilatation from atropine or belladonna.

I hope shortly to adduce the results of further experiments concerning the effect of this agent, not only when used in reference to the eye, but also when resorted to in a more general way. Especially, I hope for the opportunity of testing its power of antagonising certain spasmodic conditions of the muscular system artificially produced.—*British Medical Journal*, June 13, 1863, p. 613.

76.—ON THE USE OF ATROPINE PAPER.

By J. F. STREETFEILD Esq., Assistant Surgeon to the Royal London Ophthalmic Hospital, and to the Eye Infirmary of University College Hospital.

In the last number of this journal I alluded to other advantages of the use of the new vehicle than that of convenience to the surgeon. More personal experience, and the evidence of many friends in favour of the paper, enable me to speak of some of the cases in which, from one cause or another, it seems to have been especially advantageous. In the first place I must mention those posterior synechiæ, for which we employ strong solutions of sulphate of atropine, to obtain their detachment in this way, if possible. In certain cases of this kind, great pain is experienced by the patient, and in some of them, at any rate, it is obviated by the use of the paper medium for its application. It was so in the most marked instance of this kind of pain I had ever seen—a strong man, of good courage, a hospital patient of mine—he had had syphilitic iritis, and there remained synechiæ, which being recent, and not very extensive, were at last detached by continually using atropine. The man attended very regularly to my instructions; but the drops used to give him great pain for some time after each application. I told him to warm the solution before he used the drops, as this makes their use very much less disagreeable to the feelings of some patients. I had a new solution prepared in the hospital, but still he could hardly persevere in the treatment, the importance of which I had explained to him. Still he himself regularly applied the drops. When I applied them he used to lie on the sofa, with his hands over his eyes, and groan with pain, which, after a while, became more endurable. Of course, in hospital practice I generally use the drops, which are always at hand, but in this case I tried the paper. He had, from this time, little or no pain, comparatively none; and, as I have said, the adhesions were finally all detached.

I may now quote another class of cases, for which I am indebted to my colleague, Mr. Dixon. I cannot do better than give his own words concerning the paper altogether, as in them he has given an account of these observations. He says, "I have made great use of your atropine paper, which I find *most useful* with children and timid patients of all kinds. The sight of a bottle suggests to them the application of painful drops, whereas, with a little tact, one can put a square of your paper in contact with the globe,

without their having any suspicion of its having been done. Within the last few months I have met with three patients, in whom, through some strange susceptibility, the use of a solution of atropine, two grains to the ounce of water, induced not only considerable irritation and redness of the eyeball, but an erysipelatous condition of the lids; one of the patients was a woman under my care at Moorfields, where the drops were applied by the nurse, so that no one knew exactly what had been used. The lids of both eyes became extremely swollen, red, and œdematous; quite as much so as one sees in a case of gonorrhœal ophthalmia. There was, however, no discharge from the eyes, except of tears, nor anything like the characteristic network of catarrhal ophthalmia on the ocular conjunctiva. I had operated on each eye by keratonyxis, for cataract, and, of course, I wished to keep the pupils dilated during the process of solution; but I was unable to continue the atropine drops, for the reason I have stated. I then used your atropine paper, putting a square of it between the lower lid and the globe, every morning, and removing the paper at the end of half an hour. This sufficed to dilate the pupil, without causing any irritation either of the eye or lids.

"I have now another case of the same kind, where extreme redness and swelling of the lids resulted from the use of atropine drops to one eye. The daily application of the paper obviates all inconvenience."

In the same form as the atropine paper, Mr. Squire has prepared some, of a different colour, soaked in a solution of the Calabar bean. It acts quickly as a myotic, and in this way, and as an antidyriatic, the Calabar bean is likely to be so very useful in ophthalmology, that I suppose the paper prepared with it will be in as great demand as the atropine paper.—*Ophthalmic Hospital Reports, Vol. IV., 1863, p. 108.*

77.—CASES OF AMAUROSIS PRODUCED BY TOBACCO.

By J. C. WORDSWORTH, Esq., Surgeon to the Royal London Ophthalmic Hospital.

Within the last three years I have seen a considerable number of cases of amaurosis, apparently produced by the influence of tobacco. I admit (I need scarcely say) how difficult it is to reduce the etiology of this obscure affection to a demonstration. For, in the first place, amaurosis is attributed to a vast variety of causes, many of which are always more or less in operation; then, again, the disease is dependent on a similar variety of *pathological conditions*; and lastly, our knowledge of the physiology as well as of the pathology of the retina and brain is so limited that we can ill appreciate or define the influence of physiological agents on their structures and functions.

No one can doubt that tobacco possesses properties that are capable of producing great effects on the nervous system at large, nor that the habitual use of it has much influence, of an indirect nature, on the vital reactions. Our only wonder is that the almost universal employment of this powerful agent does not leave vestiges of its influence that are better known and recognised as signs of disease. This may be accounted for to some extent by the rapid cadaveric changes that occur in the nervous elements, thus obscuring or effacing diseased states before we have the opportunity of recognising them.

All the classic writers attribute its full share of causation to tobacco as a source of amaurosis; yet I have not met many that are willing, individually, to allow that they have traced its influence. But it has often happened that the causes of disease are long unrecognised by many, after as full a proof has been made of their reality as possible. For instance, it is recorded, of one of the causes of iritis (that every one now allows) that for many years it was not admitted by men of vast experience that any closer relation than that of coincidence existed between it and syphilis; yet so great has been the revolution of opinion that some eminent men now seem to think it never occurs except in *connexion with that contamination*.

Dr. Mackenzie, in his great work on Ophthalmology, expresses his belief that tobacco is a *frequent* cause of amaurosis, and adds that "one of the best proofs of tobacco being a cause of amaurosis is in the great improvement in vision—sometimes complete restoration—which ensues on giving up the use of this poison," and cites a very striking case in illustration. With him I agree also in the conviction that tobacco is a common cause of the cases of partial loss of sight that are daily to be found at our hospitals.—*Lancet*, July 25, 1863, p. 96.

78.—ON SMOKING AS A CAUSE OF OPTIC ATROPHY.

By ERNEST HART, Esq., Ophthalmic Surgeon to St. Mary's Hospital.

[Mr. Wordsworth having broached in the columns of the *Lancet*, the opinion that a definite lesion of the eyeball, viz., white atrophy of the optic nerve, is connected with the habit of smoking, Mr. Hart makes the following interesting remarks on the subject. He says:]

Fortunately the fundus of the eyeball is no longer concealed from inspection, but with the aid of the means which modern physicists have placed at our disposal we can examine the optic papillæ, the retina, the choroid, and vitreous, as readily as the cornea, and can read off their pathological changes. When, therefore, authors speak now of "tobacco as a cause of amaurosis," we may expect that they will be good enough to define the form of disease to which they apply that very indefinite term. Mr. Wordsworth, when speaking of amaurosis as the consequence of smoking, is of opinion that tobacco produces white atrophy of the optic nerve.

I have been unable to trace the connexion in any case of white atrophy which has come under my notice, and I cannot see that he supplies any satisfactory evidence which can be considered to support that view.

It will be observed that the tobacco disease of which he speaks in the clinical histories is in no way distinguishable from ordinary white atrophy; it seems, indeed, to be avowedly identical with that condition. Now, in the first place, to those who will think over the pathology of that affection, it will not seem a very probable suggestion that tobacco-smoking should produce this specific degeneration, without first *very seriously* affecting the other parts of the nervous system, on which it undoubtedly acts more powerfully and directly.

Among the known causes of white atrophy of the optic nerve are cerebral effusion, tumours of the brain, structural changes of the thalami and corpora striata, &c. In order to ascertain whether tobacco-smoking has any claim to be ranked among the unknown causes, I have been examining with the ophthalmoscope all the inveterate smokers on whom I could lay hands among my patients and in a considerable acquaintance. I have not in any case found the least trace of or tendency to white atrophy. On the other hand, white atrophy is found in children and females as well as in adults and males. Of the six cases which have come under my notice recently, and in which I have investigated the question, not one was a regular or considerable smoker; two did not smoke at all. In a very distressing case of double white atrophy now under my care, in which the disease is gradually approaching its last stage and the sight nearly extinguished, the patient has been a very moderate smoker, only smoking when a friend dropped in. He has not derived any benefit from total abstinence. I invite Mr. Wordsworth to reconsider this question, and I believe that a further review of clinical evidence will lead him to the same conclusion as myself.—*Lancet*, Aug. 1, 1863, p. 141.

79.—ECZEMA OF THE EXTERNAL AUDITORY PASSAGES.

By Dr. T. McCall Anderson, Physician to the Dispensary for Skin Diseases; Physician to the Deaf and Dumb Institution, Glasgow.

Eczema of the external auditory passages (eczema meatus) occurs on both sides simultaneously in the majority of cases, though sometimes one ear only is attacked. In most instances the auricles are implicated, the disease commencing on the skin of these parts and gradually extending inwards. Sometimes the auricles are affected alone, and, on the other hand, the eruption is not unfrequently limited to the meatus. As the latter class of cases are more frequently brought under the notice of the aural surgeon, the dermatologist is apt to have erroneous notions as to the frequency of the affection.

It may arise from the same causes which call forth eczema on other parts of the body, but the local causes specially operating are the introduction of pins, ear-picks, and acrid substances into the meatus. The patient sometimes complains of a feeling of fulness in the ear, but the itching is the most annoying symptom, to allay which pins or ear-picks are frequently introduced, so as to scratch the parts, the finger-nails, which are employed for a like purpose on other parts of the body being inadmissible. In this way the irritation is relieved for the moment, and the disease proportionately aggravated. The calibre of the meatus is narrowed, often so much so that the membrane of the tympanum cannot be distinctly seen, the amount of the narrowing being dependent upon the amount of infiltration of its walls. There is always exudation from the meatus at some stage of the disease, and the fluid which exudes is either milky or watery, and sometimes so excessive as almost to soak the pillow at night. If the ear is not frequently washed out, the exudation has a very bad odour. At other stages the meatus may be quite dry and scaly, and in connexion with this condition I have frequently noticed the surface of the membrane of the tympanum to be dry and scaly also. Sometimes large quantities of epithelium are thrown off from the meatus, so as to block it up, and cerumen is sometimes mixed up with the epithelial mass. The secretion from the ceruminous glands is, however, for the most part arrested in this affection. The hearing power is often not much impaired: the amount of deafness depending upon the amount of infiltration of the walls of the canal, upon the quantity of epithelium and discharge accumulated in the meatus, and upon whether the drum and mucous membrane of the cavity of the tympanum are implicated or not. Sometimes the deafness is so great that the tick is only heard when the watch is close to the ear.

The cure is often tedious, as it is impossible to apply local remedies so well to the meatus as to the skin; and strong local applications must be used with caution on account of the delicate structures at the bottom of the meatus. The ear must first be carefully syringed, so as to remove the exudation, and, when the walls of the canal, instead of exuding, are scaly, a few drops of olive oil should be previously introduced, so as to soften the particles and facilitate their subsequent removal. The relief and improvement of hearing following upon the use of the syringe is often so great as to astonish the patient who has allowed the serous exudation and particles of skin to collect in the ear for months. After all the *effete* matter has thus been removed, I frequently paint the walls of the meatus with solutions of potassa fusa (commencing usually with a solution of ten grains in an ounce of water, but the strength must be proportioned to the severity of the disease). A small paint-brush is dipped in the solution, and gently stripped, so that it does not contain too much fluid, then insinuated into the meatus for the extent of half an inch, and twisted round, so that the walls of the canal are entirely moistened by the fluid. This usually causes considerable smarting, which, however, subsides in a few minutes. If the action is very severe, it may be checked at once by the injection of tepid water, for which purpose I am in the habit, previous to the operation, of filling a syringe with it, and holding it in readiness for use, if required. If a strong solution is used (*e. g.*, 3j. to ʒj.) we must be careful not to take up so much fluid with the brush that it drops upon the drum.

as the applications which are appropriate to the walls of the canal cannot always be applied with impunity to the delicate structures at the bottom of the meatus. In cases where the drum participates in the disease, as usually happens, a weak solution (*e. g.*, potassa fusa, gr. iij. to $\frac{3}{4}$ j. of water) may be used as an injection night and morning, which is sufficiently strong to improve its diseased condition in most cases. A strong solution ($\frac{3}{4}$ j. to $\frac{3}{4}$ j. of water) may usually be painted on the walls of the meatus every two or three days, but the more severe the affection, and the weaker the application, the oftener must it be repeated. In the intervals between the applications—which I never trust to the patient if the solution is strong—I direct him to syringe out the ear twice daily with tepid water, as before mentioned. The beneficial effects of this treatment are sometimes very marked; the hearing often improves after a single application, the uneasiness in the ear subsides, the meatus becomes wider, and a large quantity of serous fluid exudes, which accounts for the improvement.—*Medical Times and Gazette*, August 8, 1863. p. 137.

SYPHILITIC AFFECTIONS.

80.—ON THE SYPHILITIC AFFECTIONS OF INTERNAL ORGANS.

By Dr. SAMUEL WILKS, Assistant Physician to Guy's Hospital.

[In consequence of the more frequent practice of post-mortem investigations it is found that the extent of the influence of syphilis is only commensurate with the tissues of the body, and that, therefore, internal parts of the organism may be affected as well as the external. Not only the cranium but the brain within it, or the nerves, may be affected; not only the muscles of the limbs and tongue, but the heart, pharynx, and œsophagus; not only the larynx, but the trachea, bronchi, and lungs; also the liver, spleen, and other viscera. It must not however be supposed that syphilitic diseases of internal organs are of daily occurrence, they are on the contrary comparatively rarely met with.]

In syphilis there is a disposition to the effusion of a low form of lymph, or fibro-plastic material, in nearly every tissue of the body, occasionally modified in character to a slight extent by the organ in which it occurs. Consequently in those who have died suffering from this disease there is scarcely an organ but what may be found affected in this particular way. In solid organs, or in the interior of the tissues, there is found a more or less circumscribed deposition of an albumino-fibrous material, whilst on the surface of the body a similar material may constitute merely the base and border of an ulcer; for just as cancer and tubercle, in their own peculiar diatheses, show themselves as masses of disease in the solid organs, and as ulcers in the skin or mucous membrane, so in syphilis the viscera may be found full of the syphilitic material, whilst on the pharynx, larynx, &c., an ulceration may also exist.

The peculiar effects of syphilis on the system.—These are characterised in one of their principal features by an exudation of lymph. This may vary somewhat in consistence and form, according to the tissue in which it is deposited, and thus on the skin or mucous membrane it may have a tendency to soften and ulcerate. The oldest observations in connection with such depositions refer to nodes on the bone, due to an exudation of lymph between the bone and periosteum. This node is very inert as regards ulterior changes, although, if not removed by remedies, it may ossify, or, becoming soft, involve the bone in caries. The iris also at a very early period in the history of syphilis was observed to be liable to a deposition of lymph, which underwent a rapid removal by mercury. In like manner condylomata or mucous tubercles were recognised as one of the effects of the virus, and also eruptions on the skin styled tubercular. It was not until a much later

period that nodules of lymph were observed to occur in the tongue, and not until a comparatively recent date that they might be found in other muscles of the body. It is now maintained that all these observations related to the external parts of the body only, or those which could be seen, but that a more extended observation of modern times has shown that the internal parts of the body may be similarly affected.

Mode of formation.—The character which the deposit assumes in a muscle may be taken as that which prevails more or less in all other organs. In the tongue or in one of the muscles of a limb a rounded, hard lump may be felt through the integuments, and thus constitutes a tumour. It differs, however, from the ordinary class of tumours, known as new growths, since the latter proceed from a small point or centre, and continually grow on the surface, whereby they become circumscribed and are constituted wholly of the new material which has been thrown out. This is the case in cancer or tubercle. In the syphilitic tumour, however, the exudation appears to have been, in the first place, of a soft and albuminous character, and being poured out in large quantity, has infiltrated the tissue; consequently, when examined, the lymph and the original structure of the part are found incorporated. At a subsequent period, when this has become hard, if a portion be examined by the microscope, the muscular structure will still be found present in the apparently simple, hard, fibrous mass; and thus it is that, if appropriate remedies be given at an early period, the tissue will be left in its integrity after the adventitious material has been absorbed. This is everyday experience as regards the tongue. In consequence, also, of the lymph being poured out, and not growing from a centre, the diseased mass is not so circumscribed as a new growth, and the lymph or fibre will be found radiating into the muscular tissue around. Thus it is that the surgeon meets with such difficulty in his attempt to remove these tumours by operation; instead of their turning out as an ordinary new growth would do, these have to be actually cut out. If not absorbed by remedies, they become very hard, and then more circumscribed, and remain inert for many years.

In the liver the same process occurs. In this organ the fibroid nodules are not seen, as a rule, until after some years of their existence. They are then hard, more or less circumscribed, but found shooting out their fibrous rays into the surrounding hepatic tissue. In this case, also, owing to the contraction which takes place, there is often left a remarkable cicatriform appearance on the surface. It is this exudation of lymph or fibro-plastic material and subsequent contraction which peculiarises the disease; thus in the pharynx and larynx, not only is there an ulceration, but an induration at the edges and base of the ulcer, formed by the same material, and in the case of the larynx, as in the instance I shall presently mention, there may be sometimes found a simple fibroid deposit, without ulceration. In the bone a similar exudation occurs in the canals, and if accompanied by caries, is followed by a similar cicatriform appearance as in other parts. This is often well exemplified on the os frontis of the cranium.

Structure.—The deposit which is met with in the liver and other organs has generally had a long existence there before it comes under our notice, and then, when submitted to examination by the microscope, is found to contain fibro-plastic elements, small nuclei, fatty granules, and some amorphous matter. By French and German writers the term gummy tumour is used to designate these syphilitic deposits, but it is a word which I do not adopt, as it would seem to suggest a soft and almost semi-fluid tumour, which is a condition not often met with, except in a very recent stage of the disease; as usually found, they are hard and fibrous, indicating a dried up condition of a fibro-plastic matter; occasionally a secondary softening process may have taken place, and thus in one or two instances the nodules in the liver have been in a semi-liquid state in their centres; but in the best-marked instance of this which I shall have to mention a question existed as to the genuine character of the deposit, and whether, indeed, it might not rather have been the remnant of a dried-up abscess. On the surface of the body or mucous membranes, however, this softening process does take place, and thus we

have caries of the tibia and cranium, or ulceration of the pharynx and larynx.

Is the syphilitic deposit peculiar and distinguishable?—This cannot be answered affirmatively, since no elements possessing any peculiarities are found in it. At the same time should nodules of fibroid tissue of the kind described be met with in the liver and in other parts of the body, a strong suspicion would be excited as to the nature of the disease; and should, moreover, they be associated with other conditions usually recognised as syphilitic, the proof of the existence of syphilis would be as satisfactory as that for any other disease. For instance, the elements of tuberculous matter are not so distinctive that a single tubercle in the body is sufficient to indicate its nature; indeed, should the theory of those physicians be correct, that tubercle is only a modification of inflammatory lymph, it would necessarily require a certain amount or distribution of it, from which a conclusion could be framed. This difficulty, however, in fixing the syphilitic deposit with any peculiar characters, has been considered by some sufficient to discredit its venereal origin, for they have said, why should that be styled specific which presents no other features than those of an ordinary inflammatory product? In answer to this I would say that, in all probability, time will evolve some distinguishing features in these deposits, but in the meanwhile I would demand of the doubters whether they disbelieve in the formation of a node on a bone or lymph on the iris because they are unable to point to the peculiarities of the effused products. I think that the changes in one organ are as characteristic as in another; and thus, if an excavated ulcer, with indurated edges and other peculiarities, is called syphilitic because these are the appearances usually met with in the venereal disease, so in like manner I should say that fibroid nodules in the liver, deposited towards its surface and producing a puckering of the surrounding tissue, are due to syphilis because so frequently met with in that disease. The argument against such a conclusion, taken from the want of any peculiarity of structure, is equally applicable to the syphilitic deposits on the exterior of the body as well as to a large number of other morbid changes in the system.

Liver.—I will speak first of this organ, because it is that which appears to be pre-eminently selected as the seat of the syphilitic formations. It is remarkable that two centuries ago the liver was thought to be affected by the venereal poison, and that since this period more than one writer has alluded to the occurrence of jaundice during the progress of the disease. These, however, were mere surmises, as no mention is made of any tangible hepatic lesion. Indeed, it is only within the last few years that the subject of syphilitic affections of the liver has been brought before the notice of the profession in England. The first description, I believe, was that given by Mr. Busk, in his translation of Wedl's "Pathology," in 1855. So little was it then known, that the author himself appears to have little knowledge of the subject, and gives his information from Dittrich. The latter (Wedl says) has shown that after inveterate syphilis the liver frequently presents a cicatriform tissue on its surface, which may extend deeply into the parenchyma; he has also noticed scattered nodules, consisting, like the cicatriform contracted parts, of connective tissue. These parts are occasionally found in a state of involution, containing an abundance of fat-globules and free pigment-molecules, and when torn asunder also presenting shrivelled nuclei. In the neighbourhood of these fibroid nodules, where the hepatic tissue has already lost its normal texture, irregular clotted masses, in which no further organization has been set up, may be observed. The callous streaks, penetrating the substance of the liver, of lightish-gray colour, consist of many fibrils, occasionally crossing each other, which when treated with acetic acid exhibit elongated, imbedded nuclei, placed at regular distances apart. Besides this, groups of pigment-molecules are very frequently seen, no longer contained in a cell, whilst in many other situations they are still manifestly closed in a tunic.

[A few examples have occurred where similar deposits have been found in the spleen.]

Lymphatic glands.—Amongst the earliest structures of the body observed to be affected by syphilis were the lymphatic glands, and the same interest attaches to them as formerly in reference to the character of the original sore, when those in the inguinal region are involved. The modern theory is probably correct, that the enlargement and induration of those glands which accompany the Hunterian chancre is an evidence of the true infecting character of the disease. When, however, the whole system has become contaminated, the glands in other parts of the body may become involved, and especially the posterior cervical; but in reference to this there appears to be some question whether they be not enlarged in consequence of some slight eruption on the scalp. In favour of this view, it may often be noticed that, when any irritation of the skin exists, they may be observed to be larger on that side where the cutaneous eruption is greatest. It would seem, therefore, to be a question still to be answered, whether the lymphatic glands are affected independently of the part whence the vessels leading to them proceed, seeing that, as a rule, these organs are merely involved in the same disease as the neighbouring textures, as, for example, the mesenteric, by typhoid deposit or tubercle, according to the character of the disease in the ileum; or as the bronchial glands are affected by cancer, tubercle, melanosis, &c., according as the lung itself is, or, as in pneumonia, where they are usually found inflamed, or at least enlarged and softened: for this reason I can quite believe that, since the lung may be affected by the syphilitic virus, so also may the bronchial glands, and therefore that such a case as the following, which Mr. Hutchinson brought before the Pathological Society, is an example of it. An infant, aged five months, died whilst affected with a syphilitic rash, and the bronchial glands were found to be infiltrated with a fibrinous deposit.

As before said, with regard to the liver and spleen, I regard the lardaceous enlargement of the glands as a *consequence* of syphilis. This general enlargement of the cervical, mediastinal, lumbar, and other glands, is sometimes found in connection with the lardaceous change of the viscera, and arises from a general cachectic condition accompanying mostly a disease of the bone; but if arising from syphilis, must be regarded merely as the sequelæ, and therefore not directly connected with my present subject.

Lungs.—Should further observations prove that many of the cases of disorganization of the lung known as phthisis originate, not in tubercle, but in a low organizable deposit induced by the syphilitic poison, a very important fact in clinical medicine will have been discovered. There is no doubt that exudations may occasionally be found in the lungs, which resemble in every respect those which have been described as occurring in the liver or other organs, and at the same time it is well known that those persons whose constitutions are broken down by syphilis and debauchery often fall victims to consumption; but to connect these two conditions requires many more observations than we have at present at command. For when the lung is disorganized it is very difficult to ascertain the character of the material which has been poured out into it and originated the disease; it may often, indeed, be found to be non-tubercular; but as low forms of inflammatory product are exuded under so many circumstances, we require that it should present some characters more marked before it can be pronounced indicative of the syphilitic poison.

[Ulceration of the *Larynx*, the effect of syphilis, is a peculiar kind of ulceration. It is characterised by the production of a fibro-plastic material which is always tending to harden and cicatrize under the curative process. In tubercular ulceration, there is a highly vascular mucous membrane, and tendency of the ulcers to spread. Ulceration and subsequent contraction may occur in the trachea and even in the bronchi.]—*Guy's Hospital Reports*, 1863, p. 1.

81.—ON THE MODERN TREATMENT OF SYPHILIS.

By ALFRED FLEISCHMANN, Esq., Associate and late Scholar of King's College.

[The following case is very interesting as illustrating the mild and yet effectual action of calomel fumigation in the treatment of syphilis. The patient was a naval officer, aged fifty. The primary ulcers had healed, but psoriasis had broken out on the hands, and commenced on the soles of the feet, and a few isolated and symmetrical spots were dotted over the legs and trunk.]

The hands were in a deplorable condition, deep fissures in every flexure of the fingers, which bled with every movement, the bran-like scales covered the floor, and he was so helpless from his infirmity, that to wind a watch, open a door, or lift food to his mouth were painful, and, for the last few days, impossible tasks. The case was typical of the disease.

I recommended that calomel fumigation should be at once added to the treatment, but as I was anxious for my patient to have his mind at rest that the best was being done for him I proposed a journey to London, with the view of seeing Mr. Henry Lee, whose view of the case was identical with my own.

He obtained the registered apparatus from Mr. Blaise, of St. James's-street, and commenced the fumigation the next day. In forty-eight hours, that is after two baths, there was a visible improvement; in fourteen days his hands were as clean and clear as my own; and in a month he was perfectly cured without the least symptom of salivation, or any of the unpleasant and usual concomitants of a mercurial course.

He now has a bi-weekly bath, and in the course of ten days will pass from under my hands.

I can speak in the very highest terms of mercurial fumigation. The apparatus recommended by Mr. Lee, and made by Mr. Blaise, leaves nothing to be desired, though, curiously enough, I was not aware of its existence until my recent consultation with Mr. Lee. The machine consists of a sort of basin, beneath which is placed a spirit lamp, and on the top is a circular plate on which is placed the *calomel*, which is the only fumigating powder that can with exactitude and safety be employed. The basin is filled with boiling water, which is kept boiling by means of the spirit lamp underneath. The amount of calomel used should not exceed half a drachm. The apparatus when in use should be placed under a cane-bottomed chair, on which the patient is seated, sitting well forward and enveloped in a kind of moleskin cloak, which should, of course, cover both chair and lamp. After sitting from ten to twenty minutes, he gets into bed still enveloped in the cloak, and remains quiet for two hours.

On this principle, but in a more cumbrous manner, I have treated nearly all my syphilitic patients—whether with indurated or non-indurated, pustular or epithelial chancre, whether with bubo or without. I never had more than a tenderness of the gums, however long the treatment has been persisted in; I have never been able to salivate, the chancres have (of whatever character) healed rapidly, and I have never had a single case of secondary in patients who were under my sole care for their first attack, and from the commencement of their attack; and in cases of secondary the progress (as in the case of my text) has been so satisfactory, that I cease to regard syphilis treated by fumigation as a scourge of nations.—*London Medical Review*, May, 1863, p. 571.

82.—ON INHERITED SYPHILIS.

By JONATHAN HUTCHINSON, Esq., Senior Assistant Surgeon and Lecturer on Surgery at the London Hospital.

[A syphilitic taint in an infant is, generally, readily detected, whereas, in after years, such taint is with the greatest difficulty traceable. Yet the taint

still exists, and, as with acquired syphilis, doubtless, produces its own special and peculiar results. How in the adult and young person are we to recognise the presence of the syphilitic taint? The most reliable symptom, according to Mr. Hutchinson, is the peculiar appearance presented by the permanent teeth—especially the upper incisors. We give the following extracts from a small work lately published by him.]

In syphilitic patients these teeth are usually short and narrow, with a broad vertical notch in their edges, and their corners rounded off. Horizontal notches or furrows are often seen; but they, as a rule, have nothing to do with syphilis.

[Other signs, inferior in value but still important, are thus described:]

The skin is almost always thick, pasty, and opaque. It often shows little pits or soars, the relics of a former eruption; and at the angles of the mouth are radiating linear scars running out into the cheeks. The bridge of the nose is almost always broader than usual, and low; often it is remarkably sunk and expanded. The forehead is usually large and protuberant in the regions of the frontal eminences; often there is a well marked broad depression a little above the eyebrows. The hair is usually dry and thin, and now and then (but only rarely) the nails are broken and splitting into layers. If the eyes have already suffered, a hazy state of the corneæ, and a peculiar, leaden, lustreless condition of the irides, with or without synechia, may be expected. If, however, the eyes have not yet been attacked by a syphilitic inflammation, they will present no deviation from the state of perfect health and brilliancy. The occurrence of well characterised interstitial keratitis is now considered by several high authorities as pathognomonic of inherited taint. It is almost invariably coincident with the syphilitic type of teeth; and when the two conditions are found together in the same individual, I should certainly feel that the diagnosis was beyond doubt.—*Hutchinson's Memoir on Inherited Syphilis*, p. 205.

MIDWIFERY,

AND THE DISEASES OF WOMEN, ETC.

83.—RUPTURED VAGINA DURING LABOUR; CHILD IN ABDOMEN THREE AND A HALF HOURS; PELVIC CELLULITIS; RECOVERY.

By Dr. JOHN HENRY BELL, Bradford.

[The patient, aged twenty-eight, had generally enjoyed good health. She had had three children previously, and had easy labours. During this, her fourth pregnancy, she has followed an active occupation.]

Labour commenced on Tuesday, August 6th, 1861, at eight o'clock in the evening, when the membranes ruptured without any previous pain; during the night she had slight, lingering pains in the back and loins; these continued regularly during Wednesday morning, getting what she called "mid-dling strong" in the afternoon, but nothing like so strong as what she had experienced in her previous labours before the birth of the child; about five in the afternoon the pains entirely ceased, her legs became quite numb, and powerless, so that she was unable to move about; she continued in this state until twelve o'clock on Wednesday night, when she was seen by my assistant, Mr. Pritchard; the head had then passed the os uteri, and was well in the pelvis, and he thought it would not be long before being over. There appeared to be plenty of room, the external parts were relaxed, and as she had not had any pains for seven hours, he gave her half a drachm of ergot; this producing no effect, in half an hour the dose was repeated; shortly afterwards, without complaining of much pain, she said she felt "*a tear, a burst, and a flow*," and thought that the child was born; there was a great discharge of blood. On examination, the head was found to have receded considerably, and receded still further before the finger; the hand was carried forward over the side of the head into the abdominal cavity. It was half-past one on Thursday morning, three-quarters of an hour after the rupture had taken place, when I first saw the woman; she was then laid in the middle of the bed, on her right side; everything about her was saturated with blood, although there was no bleeding going on just then; she did not complain of any pain; there was no sickness, no collapse, no restlessness, no unusual anxiety of countenance; the pulse was small, quick, and regular, and she said she felt rather faint. As she was not laid in a favourable position, she turned herself in bed without assistance, and did not complain of it giving her any pain. On making an examination per vaginam, the head was felt at the brim of the pelvis; the hand passed readily, without the slightest resistance, over the side of the head into the abdominal cavity; the bladder, containing some urine, could be felt in front, the intestines above, and the contracted uterus behind; the limbs of the child were felt with the right hand when applied to the abdomen externally, although not so distinctly as I had expected; the head, when grasped with the hand, could be moved about freely, and brought down considerably into the pelvis. As there appeared to be abundance of room, and the external parts were very much relaxed, one blade of the forceps was applied to the under side of the head, the left hand on the upper side acting as the opposing blade; by this means the head was brought to the outlet of the pelvis, but my hand lost its power, and I was obliged to desist. I had some difficulty in applying the other blade of the

forceps, owing to the head of the child receding considerably and being very movable; after I had got them nicely adjusted, having a very good hold of the head, without giving much pain to the mother, considerable force was applied, at short intervals, for about three-quarters of an hour; the head came readily to the outlet of the pelvis, but could not be brought further, and the forceps were then necessarily withdrawn. She was now left for about twenty minutes, to receive the consolations of her spiritual adviser. The pulse and powers were then apparently the same; she was quite calm, able and willing to do anything required of her; I therefore determined to turn. The hand was introduced into the abdominal cavity, almost as high as the stomach: one foot was laid hold of and extricated from the folds of intestine, and the umbilical cord, and gradually drawn downwards: the body of the child was soon born, but considerable force and time were required before the head would come. The operation of turning did not give any pain that was complained of; she was very quiet and patient the whole of the time. The child, of course, was dead. Nothing remarkable in its appearance.

The fingers were now passed along the umbilical cord, and its insertion into the placenta was readily felt; by gentle traction it came easily away, but whether from the uterus or abdominal cavity I could not be sure. I then passed the hand into the vagina, expecting to find that the rupture was of the lower third of the uterus, involving the vagina, but was surprised to find the os uteri very high, near the sacrum, elongated laterally, but *entire*, and in the position of the left antero-lateral reflection of the mucous membrane of the vagina a large rent, through which the hand passed readily into the abdomen; fortunately there was no prolapsion of the bowel. Immediately after delivery she expressed herself as feeling "nicely;" had no pain or even uneasiness, no faintness; pulse small, weak, and 140. The delivery was completed at four o'clock on Thursday morning, the child having been in the abdominal cavity, and subjected to rather rough usage, for three and a half hours.

[The subsequent reports state that she made tolerably rapid progress towards recovery, chequered by phlegmasia dolens and pelvic cellulitis. The abscess burst into the vagina. A very large quantity of offensive matter was discharged. Twelve months after the labour the report states:]

August 5th, 1862. For many months she has enjoyed her usual good health, and has menstruated regularly until lately; it is now nine weeks since she was "poorly," and it appears likely that she is again pregnant.

On making an examination per vaginam, the position of the rent is felt at once; anteriorly to the os uteri, in the position of the left antero-lateral reflection of the mucous membrane of the vagina is a prominent ridge, about an inch and a quarter in length; between this and the anterior lip of the os uteri is a deep furrow, which, with the ridge in front, feels something like the os uteri; the os uteri is, however, behind this.—*Obstetrical Transactions*, Vol. IV., 1863, p. 197.

84.—ON IMPREGNATION.

By Dr. F. J. W. PACKMAN, Wimborne.

It is a well known fact that queen bees lay female eggs first, and male eggs afterwards. Also, that if her conception be protracted beyond a lunar month from her birth, she will produce males only.

In the human female, conception in the first half of the time between menstrual periods produces female offspring, and male in the latter.

Numerous instances of females being "out" in reckoning the time of their parturition gave rise in my mind to a suspicion of the existence of some "law" as a cause; and from the frequency of a male child coming, I usually concluded and predicted that a late case was due to an "idle boy," and rarely failed in being right. The law above stated explains those irregularities; and

its existence has been confirmed by a friend on whose testimony as to its being a fact implicit reliance may be placed.

That law of generation applies also to animals, and probably to all animated beings.

Whether regarded as applicable to produce a male or a female population, an heir or an heiress to a title or an estate, or successor to a throne,—or to the incalculable advantages of breeding male or female stock, and ultimately rendering the whole feminine creation subservient to the necessities and will of man,—it must tend to raise our admiration of the Creator's power of regulating our existence by laws even more mysterious than those yet known to us.

Evidence of the universal existence of such a law, and of its applicability to the purposes of man in "affording a check to an overpopulating of the globe," counterbalancing the effects of war and emigration by raising a male population, in proportion to the demand, instead of females, and in breeding male instead of female flesh for the service and sustenance of our race, may be naturally expected in time, as its bearing among animated nature becomes understood and developed.—*Lancet*, July 18, 1863, p. 82.

85.—ON INDUCING PREMATURE LABOUR WITH CAOUTCHOUC BAGS.

By Dr. ALEXANDER KEILLER, Physician to the Royal Maternity and Sick Children's Hospitals, Edinburgh.

[Dr. Keiller considers that this method of dilating the os uteri to induce premature labour, and assist the natural efforts in some cases of labour at full time, cannot be fairly claimed entirely as Dr. Barnes's discovery, as it had been frequently discussed and successfully practised in Edinburgh before it was adopted by him. Dr. Barnes's very valuable paper will be found in *Retrospect*, Vol. XLVI., p. 127.]

The case in which I, for the first time, used a dilatable india-rubber bag as an obstetric instrument, I shall here recapitulate.

Case of Induction of Premature Labour—Use of Caoutchouc Bag as a Uterine Dilator and Supporting Plug.—Mrs. Field, aged thirty, was delivered of her first child on the 24th January, 1857, after a very tedious labour, extending over nearly four days (from Tuesday until Friday morning). Professor Simpson was called in to terminate the labour, which was effected by turning and subsequent craniotomy. Catheterising was afterwards necessary for upwards of a fortnight, and a slow recovery took place. I was requested to visit her a few weeks before her next confinement, but the important facts connected with her first labour were studiously concealed from me until it became too evident that parturition could not be naturally accomplished. While stepping into bed on the evening of Tuesday, the 9th of February, 1858, the membranes suddenly ruptured. I was soon after summoned, and on arriving found her complaining of slight pains, which from time to time recurred, without, however, having much effect on the os uteri until early in the morning of the 12th, when, on being sent for, I found the pains of an expulsive character, and the os sensibly more dilated; but delivery could not be safely accomplished until about nine o'clock p. m., when I extracted an unusually large male child after craniotomy. During the progress of, and immediately subsequent to, this second parturition, the cause of the delay and difficulty was obviously traceable to the condition of the pelvic brim, which was preternaturally diminished in its antero-posterior diameter.

The obstetric history of Mrs. F. clearly indicated the propriety of inducing premature labour in the event of pregnancy again taking place, and with this object in view the usual advice was given, which resulted in my being apprised of the expected third parturient period, and the necessary appointment for the induction was accordingly made and kept; for on the evening of Tuesday, the 1st of March, 1859, which, in this instance, corresponded with the

expiry of about seven-months' period of utero-gestation, I commenced to adopt the plan which I was hitherto accustomed to follow in inducing labour prematurely—namely, that of artificial dilatation of the os, and separation of the membranes from the region of the cervix uteri by digital examination, sponge-tents, and occasional application of the water douche. These means, however, seemed to be unusually inoperative, for although repeatedly had recourse to, very little progress towards useful dilatation was made; and on Friday evening, while assisting the yet imperfect dilatation by means of Kivisch's plan, &c., the membranes suddenly ruptured, and on examination, the presentation, which was still difficult to reach, was ascertained to be that of the feet, by which delivery might have been accomplished had the condition of the os and cervix been satisfactory; but these parts, notwithstanding what had been done to secure their dilatation, were unusually contracted and firm. I again introduced a full-sized sponge-tent to expedite dilatation and give support to the presenting part of the child, which was, on stethoscopic examination, ascertained to be alive. There being so little progress towards dilatation, and no signs of the accession of uterine contraction, there was no great reason to have recourse to anything like the *accouchement forcé*; and it was not until Saturday morning that I deemed it prudent to adopt further measures to expedite the as yet slow process of dilatation. It was at this point of the case that the importance of having some appliance fitted to expand safely the os uteri, and at the same time calculated to support gently the presenting parts, first occurred to me; and knowing the danger to which the child in this case was exposed by the too early rupture of the membranes, more especially as the presentation was a footling, I was naturally led to think over the plan I had in this and other cases followed, and to compare them with nature's simple plans of securing the ends in view. These reflections, aided by the counsel of my friend, Dr. Graham Weir, resulted in my having recourse to the simple caoutchouc bag, which, when carefully introduced within the os uteri and gently distended, at once becomes an admirable substitute for the unruptured membranes, safely opening the passages, and, like the natural "bag of waters," softly supporting and protecting the contained and containing structures when exposed to premature protrusion or undue and dangerous pressure.

I make special reference here, as I have always done in regard to this matter, to Dr. Weir, because it was principally in consequence of his directing my attention to the description of an instrument proposed and used by Mr. Spencer Wells, for "dilatation of the female urethra by fluid pressure," that I was induced to think of the advantages to be derived from a caoutchouc bag as a uterine dilator and promoter of labour. While conversing generally and "comparing notes" on our individual experiences of induction cases, and talking over the particular case in hand, we agreed that the instrument described by Mr. Spencer Wells might be of some service, and I accordingly resolved to give it, or something similarly constructed, a trial; but the unsuitableness of such an apparatus to effect sufficient dilatation, together with the objectionable character of its hard and pointed extremity, induced me to prefer an uncomplicated caoutchouc bag and tube, which could be readily inserted in a collapsed state, and subsequently distended or inflated to the desired extent. In such a simple apparatus I thought I saw much of the simple machinery by which nature opens up the os uteri, and simultaneously provides that gentle support and elastic pressure which are usually observed in the mechanism and vital movements of parturition. In this I was not disappointed, for on procuring an ordinary-sized india-rubber inflatable pessary, and using it as I did without unnecessary delay, my impression was at once strengthened, and I soon satisfied myself that the experiment was likely to prove highly successful; for, after folding up the thin and soft expanding bag which I had just selected, then cautiously introducing it in a conical form through the as yet slightly dilated os uteri, and then, in the first place, slowly distending it with water by means of the Higginson syringe (which I had previously used according to the plan of Kivisch with apparently but little effect), and subsequently and more effectually expanding it by inflation (the mode of

expansion which I prefer to that by the injection of water, especially since the improved air-inflating appliance has been introduced), I found that the dilatation of the os and the safety of the child were very materially secured.

The novelty of the means used and the effect produced by the simple appliance were on this occasion so striking that I at once sent for Dr. Weir, and also for Dr. Little, of Singapore, to witness the progress of the case. About 8 p. m., on Saturday, after one or two inflations, the os became sensibly dilated, and pains of an expulsive character were for the first time established, the presenting foot now descending through the dilating os at the recurrence of each uterine contraction. With the view of preventing the premature descent of the feet, and at the same time with the object of making the artificial bag otherwise serve the purpose of the natural membranes, I from time to time gently pressed up the feet, and in the absence of pain, gently insinuated and then dilated the caoutchouc bag, which admirably served the important purpose of supporting the feet until sufficient dilatation of the os and passages was secured, and which could not have been more effectually accomplished by a natural bag of unruptured membranes, which this artificial appliance greatly resembled. When Drs. Weir and Little arrived, the case was slowly advancing, and, after examining for themselves, they agreed with me in thinking that nothing could better represent the mechanism, nor answer the important purpose of the amniotic bag, than the extremely simple substitute then used.

The case was allowed to proceed as an ordinary footling, and terminated about 10 p. m. in the live birth of a fine female child. This being the first case in which I applied "the new method," I could not but feel satisfied with the result; and as the obstetric advantages derivable from the instrument used, seemed to me to be great, when lecturing to Dr. Simpson's class on the following Monday, I took occasion to show the instrument I had used, to complete the history of the case, which I had referred to in Friday's lecture, and specially to mention the various uses to which I then considered the dilatable caoutchouc bag would be applicable.

Believing that the instrument was novel, as an obstetric implement, I took occasion not only to show it, but to speak of its capabilities, whenever proper opportunities occurred, which at the time were ample enough, seeing that I was then lecturing in the University for my friend Professor Simpson, doing daily duty in the female wards allotted to me in the Royal Infirmary, and attending as the acting physician to the Maternity Hospital, where the instrument was frequently and successfully applied to facilitate labour.

It is not necessary here to repeat what I then said regarding the various uses of the caoutchouc dilator; suffice it in the meantime for me to aver that, ever since I first applied this simple apparatus, I have felt convinced that it is not only an invaluable inducer and promoter of labour, but that in many other important cases in which not only a dilator but a support or plug is called for, it will be of service, and I feel assured that to the obstetrician it will often prove a valuable aid when timeously and properly had recourse to.

I might produce numerous notes of cases from obstetric friends, who were, apparently at my suggestion, led to try this plan for inducing labour; but such a course is here, I apprehend, quite uncalled for; I have, however, selected one note received from our president, Dr. Pattison, who is unavoidably absent to-night.

"Mrs. B. was delivered of her fourth child, a boy, on the 11th of April, 1859. Labour was here induced about the eighth month, as it had been before. Dr. Keiller assisted me and used his dilator, which he had described and shown me at a meeting of the Obstetrical Society (*vide Minutes*). Mrs. B. was not aware when we were to call. The os uteri—the external—was about the size of a shilling; a very small dilator was used and distended with great effect. We got the fingers inserted, when a larger dilator was introduced. In a short time we felt the head floating in the waters at the brim, which could easily be moved about, when a foot and a hand came down. I passed my hand into the uterus and grasped the foot, ruptured the membranes and delivered the child alive. My notes on this case conclude by

stating that all was completed in about two hours and a half from the time we first commenced to deliver."

It would appear that, during the discussion which took place on the reading of Dr. Barnes's communication at the sister Society in London, my claim to priority in the using and recommending of the caoutchouc bag as an obstetric instrument was specially referred to by Mr. I. Baker Brown and others, who were well aware that my first cases were reported in March, 1859, whereas Dr. Barnes's first case was in April, 1860.—*Edinburgh Medical Journal*, March, 1863, p. 782.

86.—ON A CASE OF PREMATURE LABOUR INDUCED BY ERGOT.

By Dr. FRANCIS H. RAMSBOTHAM, Physician-Accoucheur to the London Hospital.

On May 10, 1840, Mrs. B., living in Spitalfields, being about seven and a half months advanced in pregnancy, commenced taking an infusion of ergot for the purpose of inducing premature labour, in consequence of possessing a small pelvis. She was a patient of the Royal Maternity Charity. My father had brought on labour for her twice before, one of which children was living. The uterus began to act in the night. At 2 p. m. on the 11th, the os uteri was dilated to the size of half-a-crown, sufficiently so as to admit two fingers easily, and was very soft. The head was presenting. She had taken four doses. I separated the membranes from the cervix all around as high as I could reach, and made some efforts to dilate the os uteri to a further degree. At 9.30 p. m. the membranes protruded externally, and broke spontaneously. The midwife whose care she was under called on me at 11 p. m. to say that she could not make out the presentation. As I had clearly and unmistakably felt the head presenting at two o'clock on the same day, I was not a little surprised, and returned with her to the patient's house. I found the right shoulder at the brim, and the funis prolapsed. I could not feel any pulsation in the funis, and therefore thought the child dead. There had been little or no pain since the membranes broke, and without much difficulty I passed my hand into the uterus, laid hold of the right leg, brought it down, and turned the child. It soon breathed and was restored. The placenta came down almost immediately, and she quickly recovered. On January 16th, 1843, she came to my house four and a half months advanced again in pregnancy. Both her children were then living. N. B.—It may appear that I was mistaken in my diagnosis in this case as far as the presentation was concerned, and that the fœtus had originally presented with the shoulder; but I am quite sure I was not: and such a change in labour from the head to the shoulder has been observed by other practitioners. For instance, Denman says (ch. xiv., sec. 8):—"Having been called to women at the beginning of labour, and finding by an examination that the head of the child presented, I have left them for several hours till the first changes were naturally made. When I have examined them on my return, I have found the arm of the child presenting, the head being departed out of my reach. I do not know that any practical advantage is obtained by a knowledge of these cases; but it is remarkable that the accident has always happened to women who were deformed." As, indeed, was the case here.—*Med. Times and Gazette*, July 11, 1863, p. 35.

87.—THE INDUCTION OF PREMATURE LABOUR BY MEANS OF NITRATE OF SILVER.

Prof. Giordano, of Turin, states that premature labour may be much more effectually induced by the application of solid nitrate of silver to the cervix uteri than by any other mode. Having introduced it within the cervix, he imparts to it repeated, but slight, rotatory movements, so that most of the

surface may undergo the process of cauterisation. While most of the other procedures are difficult, inoperative, or even sometimes dangerous, this one is of the most easy execution, is prompt and complete in its results, and is followed by no ill consequences. A case is narrated in which cauterisation was performed, on account of deformed pelvis, at 9 a. m., of the one day, and the foetus was expelled at 8 a. m. the next day, the placenta following in an hour afterwards.—*Omodei's Annali*, vol. clxxxii., p. 407.—*Med. Times and Gazette*, May 30, 1863, p. 578.

88.—ON THE TREATMENT OF PUERPERAL CONVULSIONS.

By W. W. JONES, Esq., Cleobury Mortimer.

[The following cases occurred in Mr. Jones' practice, they are interesting and not given at too great length.]

Case 1.—February 3d, 1847. Mary P., aged seventeen, single, was delivered by a midwife, at 7 a. m. Her labour was natural. She was seized, at 12 noon, with convulsions, which continued to occur up to four o'clock, when I first saw her. She was totally insensible; her pulse was 130; breathing stertorous; and her face nearly black. The pupils were dilated and insensible to light. She was bled to forty ounces; calomel and croton oil injections were given; and cold was applied to the head. At 7 p. m. the convulsions still continued. On the following morning, the bowels had been moved several times. She was still insensible. The convulsions had abated, and there was less stertor. On the 5th the patient passed her motions and urine involuntarily; and was totally insensible and very restless. There was much heat of surface. The next day, she was partially sensible, and could swallow a little gruel. On the 7th she was improving. The gums were tender from mercury. A very troublesome cough is noted as having been present on the next day. The case did well; but was tedious in consequence of congestion of the lungs, which was relieved by tartarised antimony.

Case 2.—April 6th, 1849. Mrs. M., aged twenty-three, married, primipara, in the ninth month of pregnancy, was attacked, at 9 a. m., with convulsions, which continued until 2 p. m., when I first saw her. She had not been conscious for some time. Pulse 120, full; breathing stertorous. The pupils were dilated and insensible to light. She was bled to thirty-four ounces; cold douches were used; calomel and croton oil were given; and injections administered. At 4 p. m., the convulsions continued with violence. The os uteri was firmly closed. The patient was in a state of profound coma. She was now bled to 10 ounces. At 8 p. m., the convulsions continued. Pulse 130. There was much heat of scalp, and throbbing of the temporal arteries. The pupils were dilated. Arteriotomy was performed; and ten ounces of blood were withdrawn. On April 7th, at 4 a. m., the convulsions were not so frequent. The bowels had acted; and the os uteri was slightly opened. The pulse was 150, feeble; the respiration was blowing or hissing; there was no stertor. The membranes were punctured. At 12 noon, labour-pains came on, and delivery took place. The next day the bowels were moved. On the 9th, she was not quite sensible. This case progressed favourably.

The urine contained a large amount of albumen; and she had swelling of her feet and legs for some time before the attack. The gums became tender from the effects of mercury.

Case 3.—On May 20th, 1856, at 2 a. m., I was called to a lady who had been attended by a surgeon of a neighbouring town, and had been delivered about twelve hours. She was of full plethoric habit; she had had three very severe convulsions, and was not quite conscious. Her pulse was 140, full and strong; countenance flushed. I bled her to sixteen ounces, and remained with her. At four o'clock, the convulsions recurred with great violence. I took another twelve ounces of blood, and applied leeches, cold,

&c., with aperients and injections. By mid-day she was quite comfortable. In this case I am fully convinced that the grand remedy.

Case 4.—On April 17th, 1859, Ann Colley, aged twenty-two, primipara, was attacked with convulsions at 9 a. m. At 12 noon, she was quite insensible. The os uteri was firmly closed. She had lost her eyesight some days before. She was bled to twelve ounces. Labour pains came on in the course of half an hour. The convulsions subsided after the bleeding, and she was delivered. Her urine was very albuminous, and continued so for several weeks. She perfectly recovered.

Case 5.—On October 23, 1861, Jane Gettens, aged eighteen, primipara, of spare habit, and having a spinal deformity, was attended by a midwife at 2 a. m. Sickness and vomiting, with convulsion, occurred at 3; the convulsions continued to recur every ten or fifteen minutes. I saw her at 7 a. m.; she was then apparently dying. After the convulsions set in, she had very strong labour-pains. I found the head of the child firmly impacted in the pelvic cavity. She was totally insensible; I looked upon the case as perfectly hopeless; but as the fits were so terrific, I had recourse to bleeding (fifteen ounces) and delivery by the forceps. She remained insensible during five days; but eventually did well. Her gums became tender from mercury.—*British Medical Journal*, May 23, 1863, p. 537.

89.—ON CHLOROFORM IN PUERPERAL CONVULSIONS.

By Dr. JOHN M'NAB, Bunnissan, Oban.

[The following observations are made with a view of illustrating the great advantage of chloroform in puerperal convulsions over general bloodletting and the so-called antiphlogistic plan of treatment. It is unquestionably true that bloodletting is still the prevailing system of treatment for puerperal convulsions; this practice Dr. M'Nab considers "empirical," and as resulting from erroneous views of the pathology of the disease.]

The following case may be adduced as a typical example of that form of the disease most frequently met with; and the method of treatment adopted will serve to illustrate the inexpediency of general bloodletting, as well as the specific therapeutical effects of the free and full administration of chloroform. It occurred in my practice some time ago, and the following is an abstract of my notes of the case at the time:

M. M'K., aged twenty-one, a dairymaid—unmarried; a robust and healthy-looking woman, residing in the country; first pregnancy, and arrived at full period of gestation. At 8 o'clock a. m., on the 29th August, 1859, I was requested by the midwife in attendance to visit her, from the labour being tedious and protracted much beyond the ordinary period. On my arrival, about half an hour afterwards, I found the patient in a violent convulsive fit, and was informed that she had two or three similar attacks shortly before I saw her. During the interval between the paroxysms she did not remain in a state of complete insensibility, but partially recovered consciousness. There was great prostration and confusion of the intelligence, with a tendency to coma. The membranes had ruptured eight hours before my arrival; the cervix was dry and congested; the os not fully dilated; the head high up in the pelvis, and the presentation natural. The pulse was full, firm, and frequent. The patient had been at this time thirty hours in labour.

With a view of effecting delivery as soon as possible, and of preventing the recurrence of the convulsive fits, I administered chloroform at once, and continued its administration until complete anæsthesia was obtained. I forthwith proceeded to apply Simpson's long forceps, and soon afterwards succeeded in delivering the patient of a fully-developed living child.

Anæsthesia was kept up for sometime after delivery, and 3j. of chloroform given internally. There was no recurrence of the paroxysms from the time that the chloroform was administered till I left her. Cold applications to the head and laxative medicine were prescribed.

30th. No recurrence of the paroxysms; consciousness completely restored; pulse still firm and frequent; bowels acted upon. 31st. Patient expresses herself as being "quite well;" rested well last night; pulse 80; no return of the paroxysms. From this time she rapidly improved.

In advocating the superior claims of chloroform as a curative agent in puerperal convulsions to any other with which we are acquainted, and in repudiating those of general bloodletting, it is not necessary that we should pass in review the different and conflicting theories that have been held respecting the proximate cause of convulsive disorders, and the different modes of treatment that have been adopted in consequence. It forms no part of our inquiry to advert to these, excepting so much as is necessary either to substantiate or to refute our arguments. It is quite sufficient for our purpose to testify to the superior beneficial effects of chloroform by unquestionable evidence, and to show that the system of treatment by general bloodletting is not in accordance with the pathological indications of cure; and if we have succeeded in this, the position for which we have been contending is certainly established.

From the above short description of the case, it will be at once observed that it corresponds exactly with that class of cases where we find bleeding and a rigid antiphlogistic system of treatment specially indicated, and regarded as the *sine qua non* to a safe and speedy recovery. Yet in this instance how different the treatment, and how salutary the result; the patient, strong and robust, without having one single drop of blood abstracted, or any other antiphlogistic system of treatment applied, made a good and rapid recovery under the influence of chloroform alone. Here, then, is an instance of the remarkable effects of chloroform in cutting short a disease which has been characterized as one of the most formidable and most serious complaints that a medical man has ever to treat. And it is by no means one solitary instance, —no mere coincidence: many similar cases have been recorded by men of unquestionable eminence and integrity, which furnish ample testimony of the therapeutic property of chloroform in cutting short convulsive disorders in the majority of cases. And let us remark, in passing, that although our observations are merely applicable to that class of convulsive disorders termed puerperal, yet they apply, in some measure at least, to the whole class of convulsive diseases; for the different kinds of convulsions, however different their remote causes may be, are dependent or may be regarded, for all practical purposes, as dependent, on the same proximate common cause; for, although convulsions are divided into eclamptic, epileptic, epileptiform, &c., these divisions "do not represent any thing else than ontological forms of disease, whose boundaries can alone be fixed by subjective dogmatism, or, at the best, by practical necessity."

Braun, who is one of our greatest authorities on puerperal convulsions, tried chloroform on an extensive scale on the Continent with the most decided beneficial effects; and the same authority has been led to the conviction that general bleeding, as practised in this disease, is productive of irreparable injury in the great majority of cases, and more especially in the anæmic form of eclampsia. Professor Simpson and others, in this country and in America, have used it extensively, and have borne ample testimony to its great superiority over any other remedy we are acquainted with in convulsive disorders. Dr. Simpson has found it of the greatest benefit in infantile convulsions, after all other means of treatment had failed.

There is, then, abundant evidence of the most marked and most satisfactory effects following the due administration of chloroform as an antispasmodic in convulsions; and with such weight of evidence, it is not a little surprising that physicians should be drawn with such reluctance from following a system that has been superseded by one more in accordance with the pathology of the disease, and fully justified by experience.

Let us now advert for a little to the method of treatment by general bleeding; and, in doing so, we must refer to some views that have been held regarding the pathology of the diseases in question. Convulsions have been regarded as depending essentially on an increased determination of blood to

the brain, and general bloodletting has been held to be the most appropriate treatment.

This method of treatment is evidently based on incorrect views of the pathology of convulsive diseases; for recent observations and experiments prove that neither the proximate nor the remote cause of convulsions is to be found in a *hyperæmic condition of the brain*. M. Delasiauve, who has paid great attention to the subject of convulsions, pointed out, for the first time, that in paroxysms the face is at first pale and anæmic, that the attacks are preceded by signs of a feeble circulation, and that the congestion is greater as the paroxysm begins to disappear. This observation was subsequently confirmed by Trousseau, Georget, Watson, and other accurate observers; and, besides, the experiments of Kussmaul and Tenner clearly proved that convulsions arise from an anæmic condition of the brain rather than from arterial or venous congestion.

Solly, in advocating the theory of congestion, refers epileptiform convulsions to a sudden determination of *arterial* blood to the head, and avers that as a result of this increased quantity of arterial blood, a corresponding increased quantity of nervous force is generated, which is at length discharged or carried off by the motor nerves, and produces, like an electric battery, the convulsive movements in question; but if this theory were correct, the superabundance of nervous power thus generated would produce a corresponding degree of mental excitement and irritation, which is never observed to be the case; and, besides, convulsive movements would attend any sudden determination of arterial blood to the brain, brought about either by vascular excitement or by removing any artificial compression from the carotids, which never takes place. On the contrary, we find that in the history of disease, convulsions are almost coincident with the stage of depression, and not with that of vascular excitement.

Again, Dr. Marshal Hall has endeavoured to establish that *venous* congestion of the brain is the cause of convulsive movements. Now, whatever show his theory of laryngismus (or spasm of the glottis) may have as an element in producing convulsions, that of sphagismus (or compression of the veins of the neck) stands unsupported either by experimental investigation or clinical evidence. Romberg, Kussmaul, Tenner, and many other celebrated pathologists, describe those conditions brought about by stasis or venous congestion of the brain as belonging more to apoplexy than to epileptiform convulsions, and are decidedly unfavourable to any theory of venous or arterial congestion that would explain the phenomena of convulsions. And the most recent writer on the physiology and pathology of convulsions, Dr. C. B. Radcliffe (Lancet), tells us that "the clinical history of disease is opposed to the theories that would ascribe convulsion to a congested condition of the cerebral veins. In whooping-cough these veins are often congested in a very high degree during the paroxysm, and yet convulsion is only an accidental accompaniment of the paroxysm. In congestion of the lungs, also, these veins are greatly gorged with black blood; and the consequences of this engorgement are dreamy sleepiness, stupor, perhaps coma, rarely convulsion. Nor is the case different where extreme venous congestion is brought about by straining, or in any other way; for here the symptoms are coma and paralysis, not coma and convulsion, apoplexy, not epilepsy. Indeed, there is nothing in all this evidence, physiological or clinical, to nullify the conclusion already drawn, that venous blood has no special action in producing convulsion. *Convulsion is the sign of depressed and not of exalted vital action.*"

These arguments, then, are sufficient to show that convulsions do not depend on an increased determination of arterial blood to the brain, or an impeded ebbing of venous blood from that organ. It is vain to seek for the cause of convulsive movements in any determination of blood to the head; and, consequently, it is vain to resort to general bloodletting as a necessary expedient for the cure of any of these diseases.

The causes of convulsive disorders must be sought for in the excito-motor nervous centres; and more particularly in the medulla oblongata, for it is there that the principal reflex movements, whether normal or abnormal, originate.

According to Schroeder van der Kolk, the primary cause of convulsions consists in a superpolarity or exalted sensibility and activity of the ganglionic cells of the medulla oblongata, whereby they are rendered more liable to discharge themselves, on the application of any stimulus, in abnormal involuntary reflex movements.

Kussmaul and Tenner, who have devoted much attention to the subject, have come to the conclusion that the proximate cause of convulsions consists in a sudden interruption in the nutrition of the brain caused by a spasmodic contraction of the capillary blood-vessels, whereby certain molecular alterations of the substance of the brain are produced, the metamorphosis of tissue disturbed, and those parts of the brain substance having the essential attributes necessary for a reflex act, brought into an exalted state giving rise to convulsive movements. This theory is not so much at variance with that of Schroeder van der Kolk as would at first sight appear, for both agree in this, that the medulla oblongata is the nervous centre whence convulsions chiefly proceed, and that the ganglionic cells of that organ have undergone certain molecular changes, which place it in a highly exalted and excitable condition, or state of superpolarity. They differ, however, in this respect, that the former accounts for the phenomena of convulsions by a state of turgescence or *hyperæmia*, of the excitable nervous centres, while the latter explains them by *anæmia*, or a low degree of vitality.

Without attempting to discuss these different theories, it is sufficient for our purpose to know that the real seat of puerperal convulsions is in the reflex nervous centres, and that there is no disorganization necessary, nor any great organic change in the tissues; but only an increased excitability or superpolarity of these centres, which is produced by some change in the chemical constitution of the blood, to which the condition of pregnancy in some way predisposes.

Dr. Simpson, as far back as 1841, directed attention to the circumstance that albuminuria generally preceded, or was co-existent with puerperal convulsions; and it is extremely probable that this excretion of albumen, which is derived from the blood through the agency of the kidneys, and thrown off in such quantities, produces a change in the chemical composition of the blood that engenders a predisposition to convulsions, which only requires the application of some exciting cause to produce them. The mere predisposition is not alone sufficient to procure eclampsia; there must be the co-operation of the exciting cause,—such as temporary irritation of the mucous membranes, irritation of internal organs, psychical influences, toxic agents, atmospheric changes, and the like.

From these remarks, then, there is every reason to believe that the phenomena of convulsions arise mainly from some molecular change of the reflex nervous centres, caused by the quantity or the composition of the blood that circulates in these centres, and not from any excessive venous or arterial congestion; and that, as regards treatment, our main reliance must be upon anæsthetics and blood-formative substances, rather than on those agents, which depress vital action, such as general bloodletting.

Let us remark, however, in conclusion, that although there is nothing in the pathology of convulsive disorders that would indicate bloodletting either as a preventive or as a means of cure, yet it is possible that the cerebral veins may become so much distended with dark blood, that there may be a tendency to apoplexy, or that the nutrition of the brain may be suddenly arrested in consequence of the impossibility of aerated blood being introduced through the arteries; in these cases, and under these circumstances alone, would we consider general bloodletting, as practised for puerperal convulsions, likely to have any beneficial effect.—*Edinburgh Medical Journal*, September, 1863, p. 230.

90.—CASES OF PUERPERAL CONVULSIONS TREATED WITH AND WITHOUT BLEEDING.

By R. PROSSER, Esq., Bromsgrove.

Case 1.—A. J., first confinement, June 6th, 1860, 4 p. m. She had been in labour four hours. The pains gradually increased, and in an hour became very strong, and she had a violent convulsive fit. She was bled immediately to about twenty-five ounces; in about ten minutes after she was bled, the convulsion ceased; but she remained insensible for a few minutes longer. Whenever the pains came on strong, the fits recurred with equal violence. The fits and pains continued at irregular intervals, and the labour progressed very slowly for some time. After the head had descended upon the perineum, it seemed to stand; and whenever the pains came on strongly, the fits came on with greater violence. The forceps was applied, and delivery very easily effected. The placenta came away. The uterus contracted, and no hæmorrhage occurred. There were no fits after delivery. The patient made a good recovery.

Case 2.—F. W., third confinement, August 6th, 1860. When the pains put on an expulsive character, she was taken in a violent convulsive fit, which passed into a comatose state. She was immediately bled to about twenty ounces. The fits continued, and the case progressed very slowly. The forceps was applied while she was in a comatose state, and the case terminated without any further difficulty or complication. No fits occurred after delivery; and she made a good recovery.

Case 3.—E. W., about eighteen months previous to my attending her, was taken in fits about nine days previously to her delivery. The fits continued about two days. She was bled twice, and had twenty leeches applied to her head. She had no fits during labour. She made a tedious recovery.

On June 4th, 1861, she was in a violent convulsive fit; the breathing stertorous, and face turgid. She sank into a state of quiet unconsciousness, and remained so for about ten minutes. The fits recurred at irregular intervals for the next twelve hours, with more or less violence. The kidneys were inactive. A saline diuretic was given; and perfect rest and quietness maintained. The fits gradually became less violent and less frequent, until they ceased. No more fits occurred, and she was naturally delivered eight days afterwards, and made a speedy recovery.

On March 20th last, nine days after confinement, she had a most violent convulsive fit, which lasted some hours, or rather a succession of fits. She bit her tongue; her breathing was stertorous, and face turgid. The bowels had not acted for three days, and the kidneys very little. She had large doses of solution of sulphate of magnesia repeated about every three or four hours, until the bowels acted freely. After the bowels had acted, she was without a fit for six hours, when a fit came on; and she was no sooner free from one than she was seized with another. The kidneys continuing inactive she had a saline diuretic, and was kept perfectly quiet, and free from all disturbance and restraint. She sank into a deeply comatose state, and continued so for eight hours. When she awoke, she expressed herself much better, but complained of feeling exhausted. No more fits occurred, and in a week she was convalescent.

Case 4.—P. D., about two years previously to my attending her, was taken in labour. She had fits; was bled and delivered; and made a good recovery.

On January 8th, 1862, labour had made considerable progress. The pains became very strong; and she was seized with a violent fit. The limbs were rigid; the breathing stertorous; and the face livid. The fit lasted about ten minutes, but recurred again and again, when the pains came on strongly. The forceps was applied without any difficulty. The placenta immediately followed the birth. The uterus contracted, and no hæmorrhage occurred. There were no fits after delivery; and the patient made a good recovery.

Case 5.—E. P., first confinement, March 18th, 1861. She had a "good

time;" but next day she had a convulsive fit. As I was not at home, a friend saw her and bled her. No fit occurred until the following day, when she was taken much the same. She had a castor-oil aperient: and made a good recovery.

Case 6.—G. O., in February last, had a natural labour; but a few minutes after the birth, she had a convulsive fit which only lasted about five minutes. Neither bleeding nor any other treatment was adopted. She was kept perfectly free from all disturbance; did not have another fit; and made a good recovery.

Remarks.—The first two cases show that bleeding was tried with no benefit; for the fits continued, and only ceased upon delivery. Cases 3 and 4 were subjected at two different confinements to the two different systems of treatment, and recovered equally well. Case 5 was bled immediately, when a slight fit occurred—and yet a similar fit occurred next day. Case 6 was similar to case 5, but got well without any treatment at all.—*British Med. Journal*, July 25, 1863, p. 86.

91.—ON THE INJURIOUS EFFECTS OF CHLOROFORM INHALATION DURING LABOUR.

By Dr. ROBERT JOHNS, B. A., Examiner in Diseases of Women and Children, Royal College of Surgeons in Ireland.

[We do not give this paper in full, but think it sufficient to present the author's opinion on the subject. From experience, and repeated observation, he is firmly convinced that]

Chloroform, when inhaled during labour, very fruitfully predisposes to hemorrhage, puerperal inflammation, chest affections, and to other diseases detrimental to health and life, which it aggravates if given during their presence. It also lays the foundation of diseases to arise at a more distant period, and thus increases the mortality in childbed and subsequent thereto. I have known puerperal inflammation frequently to have followed its inhalation, and too often with a fatal result; in fact, some years since, when it was more fashionable, and was given with a more lavish hand, a great mortality obtained amongst the patients of some few men who administered it—so much so that a popular outcry was raised against its employment. In the majority of those cases puerperal fever was the cause of death, which, when thus raised, being, as I firmly believe, always infectious or otherwise communicable, became epidemicized, after which even those who wisely refused the drug, "charmed it never so sweetly," were thus inadvertently, and, in some instances, hopelessly poisoned.

[Dr. Denham says that the advantages to be gained by chloroform in some cases, will not be found an adequate compensation for the loss of power sustained in the muscles of animal and organic life, and he also observes that in some cases, were its use prolonged, patients might remain undelivered for hours or even days. The cases that apparently require it most—tedious and difficult labours—are those where it often appears to be injurious, by weakening the pains or relaxing the muscles of animal life. Merryman mentions a case where the "uterus was so paralysed that it failed to act afterwards." Dr. Johns cites many eminent authorities to sustain his position; but, on the other hand, many may be cited on the opposite side. We think the question may yet fairly be considered *sub judice*.]—*Dublin Quarterly Journal*, May, 1863, p. 353.

92.—ON THE ADMINISTRATION OF SECALE CORNUTUM.

By Dr. JOHN W. BECK.

[The following is taken from a paper read before the Ulster Medical Society. The observations on the best mode of preserving the secale are valuable.]

It is a drug the active properties of which are very easily destroyed by

damp. It is also very liable to be attacked by an acarus or mite, particularly when damp. It should be procured in substance whole. I have no faith in its powder, or tincture, or extract, or anything else but itself. After it is procured, it should be carefully dried, and put into a well-stoppered bottle, with a small piece of camphor. If this is done it will keep sound and active for a long time. The camphor seems to have the effect of preserving it from the attacks of the acarus. Again, a new parcel of the drug should never be placed in the bottle along with the old. What remains of the old stock should be taken out, the bottle well washed and dried, and your new lot, well dried over a stove, if possible, placed in it on the top of a little bit of camphor. I believe that it is from neglecting to preserve this valuable drug properly, or from prescribing some of its *fancy* preparations, that it so often disappoints the expectations of some practitioners as to cause them to lose faith in it. I have no hesitation in saying that if you can procure a sound lot of this drug, and preserve it in the way I have directed, you will be very seldom disappointed in its action if administered in the following manner, and I again repeat, *only in appropriate cases*. I know that latterly when it failed in my hands even once, and particularly if twice in succession, I was inclined to look for the cause in the bottle, and more than once found it then in the bad quality of the drug.

The way I administer the drug is as follows:—I take two drachms, always fresh powdered as required, and boil it in eight or ten ounces of water for about five minutes. I administer this in three or four doses, *as hot as it can be swallowed*, with from twenty minutes to half an hour between each dose. Generally two or three doses are sufficient to produce all the effects required, sometimes one dose will do. If the first or second dose produces little or no effect, you will generally find the third or fourth will produce as little, and I don't believe it is even useful or necessary to go beyond this two-drachm dose, even when the first or second dose is thrown off, as it sometimes is. When it is thrown off, it is not because it is an emetic in the ordinary sense of that word, though it has been called one. It excites the uterine action, and this action (or rather the stretching of the os uteri caused by this action) excites or produces the emetic effects on the stomach, precisely as occurs in cases when no secale has been given. Some one relates the case of a married woman who always vomited while in coitu, and I had a patient myself whom I could make retch at pleasure by touching the os uteri with the tip of the finger, although she could give no explanation herself as to the cause of the retching, or as to why she retched, yet the result of the touch was invariable. I made the discovery accidentally while examining her by the *tactus eruditus*. I had an opportunity of ascertaining some year or two afterwards that the os uteri had lost this peculiar irritability.—*Dublin Medical Press, June 17, 1863, p. 593.*

93.—ON THE TREATMENT OF PLACENTA PRÆVIA.

By Dr. EDWIN WILLIAM MURPHY, M. A.

[The following extract from the recent edition of Dr. Murphy's work on the Principles and Practice of Midwifery, conveys in a concise, but rather dogmatic form, his directions as to the treatment of placenta prævia. Dr. Barnes' suggestion, of separating the placenta from the cervical zone merely of the uterus, a practice that we believe to be in many cases preferable to its total separation, is, however, totally ignored.]

If it should unfortunately happen that you are called to a case of extreme exhaustion—if you find your patient almost pulseless, with cold extremities, cadaverous countenance, perhaps tossing herself about the bed, in the effort to breathe—we have no hesitation in telling you to remove the placenta at once; to plug the vagina immediately afterwards; to give her a large dose of laudanum (forty minims) in brandy; to support in every way the temperature of the surface; and, if you find the action of the uterus still feeble,

you may try the electric current to promote its action. (We presume, of course, that the apparatus has been previously prepared for you.) But should the pulse be restored, and reaction at all take place, we think you will find that a full dose of ergot of rye will sufficiently answer the purpose. We do not ask you to remove the child even then, because we are very doubtful that any advantage is gained by doing so. The source of hemorrhage is not at the fundus, but in the cervix uteri, exactly where it is compressed by the head of the child on one side, and the plug at the other; which, it appears to us, will far better control any subsequent bleeding from the sinuses than the removal of the child from the cavity of the uterus. Besides, there is a double risk in such an operation: your patient may be unable even yet to bear the shock that we know it produces, notwithstanding the reaction and signs of amendment. It is also doubtful, as we have stated, whether the sudden emptying of the uterus might not be attended with fatal consequences, when the pressure is suddenly taken off the great venous trunks in the abdomen, which are imperfectly filled with blood. It might be thought unnecessary to plug the vagina after the removal of the placenta, inasmuch as hemorrhage ceases on its separation. We advise it as a *precautionary* measure to meet the possible contingency that hemorrhage may occur. There is no rule without its exception; and although in ninety-nine cases no flooding may follow, in the hundredth you may regret not having plugged the vagina.—*Dublin Quarterly Journal*, May, 1863, p. 433.

94.—CASE OF PLACENTA PRÆVIA: REMOVAL OF PLACENTA BEFORE DELIVERY.

By Dr. D. M. WILLIAMS, Liverpool.

[Dr. Williams, on arrival at his patient's, found the bed-room floor "absolutely covered with blood." The patient was forty-one years of age; had had seven children and one abortion. She considered herself seven months pregnant. The bleeding had, for the first time, come on about an hour before he saw her.]

On examination, I found a small portion of placenta in the vagina, the remainder being applied to sides and front of os, which was dilated to the size of a 5s. piece, very firm, the head pressing on it, no pains, and flooding profusely. I endeavoured to gain time by plugging, but it was useless; I removed the plug, and introduced my hand into the vagina, but found it utterly impossible to turn; there was no time for craniotomy (even if applicable) as I believe she would have died in twenty minutes if the hemorrhage was not stopped. I therefore removed the placenta. The bleeding ceased instantly, and I left nature to finish the work, turning my attention to the general condition of the patient. She was nearly pulseless, very restless, &c. I supplied her with stimulants freely, and presently with beef-tea. At three the pains recommenced, and soon became tolerably frequent, and at four she expelled a male fetus, and seemed almost as comfortable as if she had not nearly bled to death. She is now rapidly recovering.—*Med. Times and Gazette*, Aug. 22, 1863, p. 214.

95.—ON THE DELIVERY OF THE CHILD IN PROTRACTED LABOUR.

By Dr. EDWARD WILLIAM MURPHY, M. A.

[We extract the following from the 2nd edition of Dr. Murphy's work on the Principles and Practice of Midwifery, recently published. In those cases of very slight deviation from the standard pelvis, when it seems likely that the head will pass, if nature be allowed time for the purpose, the best plan is to wait, through very adroit operators may relieve the tedium of a long attend-

ance by a ready application of the forceps, yet if any accident should arise from this mischievous meddling, the operator is fully responsible for all the consequences that follow from it. When however the head remains actually arrested for hours, if the ear can be felt, or the finger be passed easily between the head and the pubes the forceps is required for the delivery of the child. But when the head is not so arrested, but at the same time advances so extremely slowly that it seems to be arrested, there is considerable discordance of authorities as to the proper course to be pursued by the accoucheur.]

In the last generation, we find Burns, Hamilton, and Campbell advocating prompt interference when the second stage is making such slow progress, while Wm. Hunter, Osborne, and Denman were opposed to the use of instruments so long as the natural efforts seemed adequate to their object. At the present time, Dr. Collins has laid down the rule "that so long as the head advances, *ever so slowly*, the patient's pulse continues good, the abdomen free from pain on pressure, and no obstruction to the removal of urine, interference should not be attempted unless the child be dead."

This principle has been severely attacked; and in the controversy a new and very important question has been raised by Professor Simpson, which if true, would decide in favor of interference in all such cases. He has shown from statistics that mortality is increased in direct proportion to the length of the labour; that a labour of four hours' duration is more fatal than one of two hours; one of eight hours than one of four; and so on. Hence the inference that protracted labours are dangerous because of the *time* they occupy. We have given this important proposition the reflection it so justly merits; but confess we cannot coincide in the conclusions drawn from it. It seems to prove too much; that not only are the longest labours the most dangerous, but that the shortest are the safest; neither of these propositions has the support of our experience. The dangers of protracted labour depend upon many causes; and, if the constitution be good, *time alone* is the least injurious. Rapid labours are attended with risks from which those of moderate duration are free. We do not think, therefore, that the shortest labours are the safest, or the longest *in time* the most dangerous. This question must be determined by individual experience; because there are many causes of error very difficult to remove from a statistical calculation, which would lead to a false conclusion. The time which labour occupies involves the question—What causes the delay? If a difficulty exist leading to a fatal result, the death is attributed to the time occupied, not to the obvious cause; so that it may be perfectly true that labours are dangerous in proportion to their protraction, and yet not true that the danger consists in the time occupied. Dr. Simpson has taken Dr. Collins's tables as the basis of his calculation. These were derived from the Dublin Lying-in Hospital exclusively. In that hospital, women were frequently brought in when labour had made considerable advance. Those delivered in one, two, or four hours, may have been a much longer time in labour before they entered the hospital. The actual duration of labours under six or eight hours in that institution was quite uncertain. These statistical results may prove that every hour spent in the hospital increases the danger to the patient; but this proves nothing with regard to labours of one, two, or four hours' duration; because in such cases there was no certainty as to actual length. The time stated in the report was the duration of labour *while in the hospital*.

With every wish to avoid controversial questions, that before us is too important to pass over. Professor Simpson's able researches have been quoted as an authority for the most unscrupulous use of instruments. Women in perfectly natural, and even easy labours may be delivered by the forceps; and if they be persuaded that it is dangerous to allow the labour to proceed when it can be at once terminated, the argument is a justification for immediate delivery. Thus those whom Dr. Blundell well describes as "obstetric reprobates" go about with the forceps to deliver the child the moment it comes within reach, and will quote Professor Simpson as their authority for the practice.

This practice is not new; Chamberlen and Roonhuysen followed it when the forceps and vectis were first invented. The mischiefs done by the followers of these men led a succeeding generation to protest strongly against this abuse, some eminent and experienced men, as Osborne, almost excluding the forceps from practice; and thus, ever since, a struggle has been going on between those who consider the art of midwifery to be the quick delivery of the child, and those who believe it to be the art of assisting nature to overcome a difficulty. Those names who stand highest as men of eminence and of the largest experience are perfectly agreed upon the impropriety of unnecessary interference, or, as Blundell describes it, "mischievous meddling."

Professor Simpson's statistics show the proportionate mortality in protracted labours, but do not, could not, state the mortality if the duration of labour was shortened by instrumental interference. It is assumed that the mortality would diminish; but this is not proved. We have endeavoured to determine this question in the only way which seemed to us practicable; by comparing the results where the forceps had been used to conclude labour, and where it had been allowed to proceed in a protracted course to terminate without assistance.

For this purpose, the only reports upon which we can depend, are those of the Dublin Lying-in Hospital. In all others we have forceps operations, and the results to mother and child, but we have no knowledge of the effects of merely protracted natural labour.

In this respect, therefore, these reports from their fulness and accuracy are especially valuable. Three reports have now been published, giving the results of different—we might say—opposite practice under precisely the same circumstances:

Reports of	Total Cases.	Natural Labours above 24 hours.				Forceps Cases.				Vectis Cases.			
		Mothers.		Children.		Mothers.		Children.		Mothers.		Children.	
		L.	D.	L.	D.	L.	D.	L.	D.	L.	D.	L.	D.
Dr. Collins.....	16,654	324	299	25	263	61	24	20	4	16	8	3	3
Drs. Hardy and M'Clintock.....	6,634	171	162	9	119	52	24	19	5	11	13	17	17
Drs. Johnston and Sinclair.....	13,748	247	235	12	198	49	200	189	11	171	25	—	—
	37,036	742	696	46	580	162	248	228	20	198	50	20	20
												11	9

The total of these reports give the following results:—742 women, having labour protracted beyond 24 hours, were delivered without aid; 46 died, being nearly in the proportion of 1 to 16; 162 children were lost, being in the proportion of 1 to 4·6; 248 women were delivered by the forceps, and of these 20 died, or 1 in 12·4; 50 children delivered by the forceps were lost, or about 1 in 5.

So far, therefore, as the general results are concerned, the mortality of mothers in protracted labour will bear comparison with that where forceps were employed. In both instances the maternal mortality is higher than the average, because it was impossible to separate cases of puerperal fever from ordinary labours. Of necessity, therefore, the mortality was increased. In placing, however, the question in the clearest light, the practice of Dr. Collins, who only used the forceps once in 694 cases, may be compared with that of Dr. Shekleton (Johnston and Sinclair's Report) who used it once in 684 cases. Both were in charge of the same hospital and of similar cases. The deaths of mothers delivered (without forceps) in protracted labours, were 1 in 16. (Dr. Collins's Report.) The deaths of mothers delivered with the forceps were 1 in 18. (Drs. Johnston and Sinclair's Report.) If this difference on the one side be compared with that on the opposite (1 in 12·4) from the total results, it may be said to disappear; proving that, in cases of difficult labour, which are of necessity protracted, mere duration does not increase the mortality.

[Dr. Murphy next quotes the tables of foreign practice, as given by Dr. Churchill, and proceeds:—]

We have endeavoured to prove, from the fairest review of statistical evidence we can make, that, in difficult labours, where so much judgment is required, there is no essential difference in the maternal mortality, whether the forceps be used or not. The deaths of children are also alike, one in five cases. "The total result," says Dr. Churchill, "is that in 5,731 cases" (of forceps operations) "998 children were born dead, or about 1 in 5." (*Midwifery*, p. 344.)

We have shown that in protracted labours the deaths of children were 162 in 742 cases, or about one in 4½, an immaterial difference. Hence in such cases the experienced practitioner may exercise his own judgment, uninfluenced by fear of delaying assistance on the one hand or of affording it on the other. In fact, every case of difficult labour requires to be considered individually, and the treatment must vary with the conditions. If it should happen, as in many of Dr. Collins's cases, that time was necessary in order so to mould the head to the inequalities of the pelvis, that it might pass through, the practitioner need not be under the apprehension that every hour's delay increases the danger, and be led against his will to a mischievous interference. If, on the other hand, the case seems to indicate a chance of saving the child and shortening labour without injury to the mother, he will not hesitate to interfere.—*Dublin Quarterly Journal*, May, 1863, p. 421.

96.—ON A NEW MODE OF SECURING THE HANDLES OF THE FORCEPS DURING DELIVERY.

By DR. W. GATTON, Fellow of the Obstetrical Society.

[We, ourselves, never require to tie the handles of the forceps in order to prevent the blades sliding or changing their position. During the absence of pains, we relax the compressing force, but retain just sufficient hold of the handles to prevent them sliding out of position. Denman recommends the handles of the forceps to be tied together, "but not in such a manner as to increase the compression on the head of the child." In most of Smellie's plates the handles are tied together by a tape.]

The operation of tying and untying a ligature is associated with so much trouble that the practice is undoubtedly neglected: the consequence is, that the blades are kept firmly compressed against the foetal head during the whole time of extraction, and this is, unless I am mistaken, the solution to the problem with regard to the excessive infant mortality during delivery by this instrument. If, on the contrary, the hand is used instead of a ligature, the power applied during manipulation is divided, part being used to keep the handles approximated, and part being expended on the extraction; the hand in this way becomes fatigued, and delivery is probably retarded.

The instrument differs in no way from that in general use, except at the extremity of each handle and in the lock.—the latter is an improvement by the maker (Krohn, of Whitechapel-road). My addition simply consists of a means of junction on the old rack and spring principle: on the one handle the rack and spring is placed, the other is flattened and tapered so as to be received into the furrows made for it. When the blades are applied, and the instrument locked, it may be kept at any degree of compression by simply raising the spring and allowing the end of the handle to advance or recede as desired. In this way, during the interval of pain, the pressure is in a moment taken off the foetal head, and as quickly replaced; nor do I believe does the addition in any material way interfere with the action of the instrument, especially if the rack be kept downwards.

The value of any instrument is only proved by oft and repeated trials. In my own hands it has proved successful, and I can confidently await the verdict of a wider experience. The main object of the inventor was to provide a suitable means of uniting the forceps when applied, without the incum-

brance of ligatures (which are not always at hand), and, if possible, to lessen infant mortality. One or other of these objects being answered, the object has been attained; and I trust another addition has been made to obstetric art.—*Medical Times and Gazette*, August 29, 1863, p. 218.

97.—ON A CASE OF COEXISTING EXTRA- AND INTRA-UTERINE PREGNANCY.

By J. P. PENNEFATHER, Esq., Tottenham.

[The patient was thirty-eight, and the mother of five children. During this, her sixth pregnancy, she was troubled with many unpleasant symptoms, as excessive vomiting and abdominal pain. The abdomen attained an enormous size.]

On September 4th, after six hours' labour pain, a full grown female infant was born. The abdomen still appearing very large, the gentleman in attendance suspected a twin case; but after remaining some hours, and carefully examining, he pronounced the enlargement to be an ovarian tumour. I received a telegram to this effect, and immediately left for her house. I found Mrs. H. in a very happy frame of mind, and quite free from pain, the birth of the child having relieved the enormous tension. On examination externally, I found a large and hard swelling to the left of the umbilicus; and after long and careful search I distinguished the foetal tick, as well as the movements of a foetus. I communicated my opinion to the medical man, who, however was not equally fortunate, and still adhered to his diagnosis. I distinctly traced the outline of the uterus on the right, but not satisfactorily on the left side. I thought we might here have a case similar to Madame Bovin's, and recommended the administration of ergot. The action of the drug I watched closely, and found that, though acting powerfully on the womb, the tumour was uninfluenced by it. Half an hour after it was given, I could find no further movements. On a vaginal examination, I found the womb had considerably ascended. I then formed the opinion that the case was one of coexisting intra- and extra-uterine pregnancy. The patient was greatly emaciated, but now seemed to gain flesh rapidly; there was but slight discharge from the vagina; and the breasts secreted no milk. Her recovery was steady and uninterrupted.

Dr. Oldham was consulted, and pronounced the swelling to be an ovarian tumour. This lady came on a visit to me soon after, and, as she was leaving the neighbourhood of London, I took her to Dr. Ramsbotham, who passed a uterine sound, and found the womb normal. From my description, he agreed with me as to the nature of the case. When leaving, I laid down certain rules of treatment, impressing the necessity of calling in medical aid should the bowels become at all irritable.

For three months her general health steadily improved. At the latter end of January, 1863, she was obliged to call in medical assistance. In the early part of February hectic set in, with distressing diarrhoea and profuse sweats; the pulse ranging from 120 to 160. Opium was the only drug which exercised any influence over the bowels; the mildest purgative caused such hypercatharsis and depression that large doses of stimuli became necessary to support her. On February 14th, the gentleman in attendance detected fluctuation in the left iliac region. Concluding that it was fluid in the ovary, and the patient's condition being very unfavourable, with the perfect concurrence of the two gentlemen called in consultation, he plunged a full-sized trocar into the swelling. No fluid flowed, and on withdrawing the trocar it was covered with faeces. The patient was kept on her back, and the puncture healed rapidly. The hectic immediately subsided, and all bad symptoms were for the following ten days much relieved. The bowels then became troublesome, tenesmus occurred, and emaciation was extreme. (The above account from January, 1863, I received from the surgeon in constant attendance.)

On the 10th of March I received a telegram requesting my presence. On examination, I found the abdomen much reduced in size; the prominent swelling had disappeared; and it was only after careful investigation that I could detect any hardness. From the subsidence of the tumour, and the account I received of the immense quantities of faecal matter passed, I felt inclined to change my opinion to that formed by the gentleman then in attendance—namely, that the tumour was caused by a collection of faecal matter in the intestines. Concluding that if such were the case, the tenesmus arose from an accumulation of hard faeces in the rectum, I introduced my finger with much difficulty, owing to the extreme sensitiveness of the part; but the examination caused so much pain, almost amounting to agony, that I was compelled to desist. Not being able to obtain a speculum, and being obliged to return to town that evening, I urged on the patient the necessity of allowing it to be used. (Her long sufferings had made her rather intractable.) I sent one from town, and on the following day was again sent for. I found that, when using the speculum ani, a shred was seen hanging from the vagina; and on examining it, a bone of the foetal skull was seen at the orifice. Feeling certain, from the state of the patient, that unless speedy relief was afforded, twenty-four hours would probably fatally end the case, I determined at all hazards to extract the whole of the offending mass.

The patient being placed slightly under the influence of chloroform, I carefully introduced a large speculum into the vagina, and about midway came in contact with bone. I dilated the instrument and brought away one of the parietal bones, keeping the edges in contact with the sides of the speculum. A little higher up I met with the occipital; and then having well syringed out the vagina, I carried the instrument up to the os, which I did not distinguish. I saw a fleshy mass presenting, and with a long bullet forceps pulled away the clavicles and scapulæ. Having got a firm hold of the sternum, I gradually brought forth a full-grown male child, minus the head, much decomposed and saturated in faeces. The vagina was again well syringed out, large quantities of faecal matter flowing from it. I left the patient, on the following day, much relieved and free from pain.

On examination with the speculum two days afterwards, I was informed, a large rent had been discovered to the right of the os. For some days all faecal matter passed per vaginam about every half hour; this, however, has gradually diminished, and at the present time (May 14th) all the dejections pass naturally; her strength is fast returning; her appetite is excellent; and her mind, which from long suffering became rather enfeebled, is fast regaining its tone. She has come a long railway journey without inconvenience, and is in all respects progressing most satisfactorily.

Thus has terminated favourably a case which I believe to be unprecedented, those on record having ended fatally in the early months of gestation. After such a long period of suffering, nature proved sufficient to repair an injury which from its position art could with difficulty accomplish, and the continuance of which would have made life a burden. When first the case was diagnosed as an ovarian tumour, I doubted the possibility of pregnancy going on to the full time with so large and irritable a growth of the ovary. Dr. Rigby, in his work, says that pregnancy to the full time of gestation cannot exist with either a large or rapidly growing ovarian tumour; with which I fully concur. Here we would have had but also a large but also a very irritable one. This led me in the first instance to examine very minutely. I am inclined to think that the ovum was arrested in the left fallopian tube; that it ulcerated its way into the intestines; that the bones of the head became fixed against the upper part of the recto-vaginal septum, and there ulcerated a passage through. The body must have been in the intestine when I operated. With the great care used, I do not think that the parts were lacerated much more than that destroyed by the ulcerative process. The puncture, which at the time was looked upon as a grave error, acted beneficially, for the fetus descended immediately after it; and from the escape of very fetid gas, together with what I could ascertain of the amount of urine passed that night (the patient not moving off her back), I think

that the cyst was punctured, and that the fluid escaped by the bowels.—*Lancet*, June 20, 1863, p. 688.

98.—CASE OF PRESENTATION OF THE RIGHT ARM AND SHOULDER—DELIVERY BY THE NATURAL POWERS, OR SPONTANEOUS EVOLUTION.

By Dr. RICHARD HODGES.

On Sunday, the 8th of January of the present year, I was summoned to visit a lady in labour with her fourth child. At eleven o'clock on that day, the os uteri was found fully dilated, and the membranes protruding through it, distending the vagina; but no presentation could be ascertained. During a pain the liquor amnii escaped, and no more uterine action occurred throughout that day, the following day, Monday, or the next, Tuesday, until towards the evening, when, on account of slight pains, I made an examination, and found a hand high up presenting. The patient was cheerful throughout this interval, sat up the greater part of each day, felt as if nothing was the matter with her, and considered it strange that the process of labour should have been so suspended. The pains, however, did not forget to return; they kept returning and increasing in intensity, and with their return the presenting part was more and more easily recognised. Ascertaining that the right hand, arm, and shoulder presented, and believing it unlikely that delivery would take place without assistance, I cautiously introduced my hand into the uterus, with the view of bringing down the feet; but I was unable to do so, from the uterus firmly embracing the foetus, and preventing my hand passing on far enough to seize them. By the continuance of the pains, however, the presentation was forced lower and lower; the arm and shoulder now protruded at the pubis, and the side of the chest pressed out the perineum; the breech, by further efforts at this time, descended and turned forwards, and was expelled as an ordinary breech presentation, the body of the child curving or bending to a sufficient degree to admit of delivery quickly taking place, the arm and shoulder all the while remaining under the arch of the pubis, and not receding. The head was now alone left, and soon extruded, and the whole process was over at two o'clock on the morning of Wednesday, and in less time than on previous occasions when the presentation was natural. The child was above the average size, and, there is reason to believe, had been dead several days.

The case just narrated is interesting, not only on account of showing the fact that nature is, for the most part, adequate to the end in view—that she is the best and safest physician,—but also in exemplifying a mode in which expulsion under such circumstances takes place, and regarding which a diversity of opinion has prevailed; one supposing that the lower extremities descended during a pain, and made room for the upper, which ascended as the others came down, till, the body turning round on its axis, the breech was expelled, as in an original presentation of that part; while another, believing it impossible for the upper extremities to mount up into the contracting uterus, and that, consequently, no part which has once protruded ever receded.—*Edinburgh Medical Journal*, June, 1863, p. 1133.

99.—CASE OF TRIPLETS.

By WILLIAM FURNIVALL, Esq., Hutton, Somersetshire.

On the 11th of April last, I was called up, about one o'clock in the morning, to go to the village of Bleadon, to attend in labour a poor woman of the name of Emma C. Bleadon is situated about two miles from my residence, so that when I arrived at my patient's house it was very nearly two o'clock. She had given birth to a male child, about five pounds and a half in weight,

more than an hour, when I reached her; but two women, who were staying with her, told me they believed there was another child behind, as the size of her abdomen did not seem much, if any, diminished. On placing my hand on her abdomen, I at once coincided with the women that there still must be another child to come. I of course made an examination per vaginam, and felt, very high up, the membranes containing another child beginning to protrude from the os uteri. At that time I could not, with any degree of certainty, say what the presentation was; neither could I do so till about four o'clock in the morning, by which time I very easily discovered the feet presenting. By five o'clock, with only a trifling interference on my part, a female child was born, which would have weighed about six pounds. The abdomen now had not very materially diminished in size, and still remained very hard, so that I was convinced the uterus, even yet, had in it a deal more of something than the placenta. I again made an examination, and found a something beginning to protrude from the os uteri. In the space of half an hour it had sufficiently advanced to satisfy me that another child was making its way feet first. I very soon was enabled to seize the feet of this, the third, another male child, of about six pounds weight; and as the external parts were well expanded, from the births of the two previous children, I had no difficulty whatever in bringing it into the world. The hardness of the abdomen had now much given way, but its size was still very great, occasioned, in part, from two placenta, and in part from a rather unusual quantity of blood the uterus contained.

In a few minutes after the birth of the last child the woman became very faint, her pulse being scarcely to be felt, and fearful hemorrhage came on. I, therefore, found that it would not do to delay matters, having satisfied myself that the placenta were still adherent. I at once introduced my hand into the uterus and removed the placenta, and, as contraction of that organ did not immediately follow, I gave her a drachm of the liquor secalis cornuti (Curtis) in a little strong brandy-and-water. This afforded her temporary relief only, for the hemorrhage continued, though in a less alarming degree, for an hour and a half from the time the last child was born. I gave her a second dose of the ergot, and continued the brandy-and-water till such time as I considered it safe to discontinue it, which was not till nearly three hours after the birth of the last child.

The woman's recovery has been protracted, on the whole, but I am now able to pronounce her (five weeks from the time of her confinement) well. The three children are all alive, and, as far as I am able to judge, likely to live.—*Lancet*, July 18, 1863, p. 81.

100.—NEW MANNER OF PLUGGING THE VAGINA.

(The following extract is taken from a paper by Dr. E. P. BENNETT, in the *American Medical Times*.)

In placenta prævia, and in cases of abortion, the life of many a female is saved only by the judicious use of the *tampon*. This operation, so efficient, is many times a troublesome one, both for practitioner and patient, especially when the substances introduced have been saturated with astringent solutions, as they usually should be to render them doubly efficient. In early life, I found much trouble in this respect, as the alum or other astringent so corrugated the parts as to render their introduction difficult and painful. Now, by using a common *glass speculum* all trouble is at once removed. You can pack the vagina to its utmost capacity in a single minute without any trouble or suffering to your patient. In cases of abortion, in two instances where a small portion of placenta remained beyond the reach of instruments, and where hemorrhage was long continued and alarming, I succeeded in saving the women by plugging the os uteri with a piece of sponge—an operation easily done through the speculum, but almost impossible without it. One of these ladies was, and now is living in your city, and was reduced to the

lowest condition. This plan may have been pursued by others; but so far as my recollection serves me, I have not seen it mentioned.—*Glasgow Medical Journal*, July, 1863, p. 254.

101.—ON BRONCHO-PNEUMONIA IN LYING-IN WOMEN.

By Dr. ROBERT BARNES, Physician to the Royal Maternity Charity.

[That lying-in women are liable to a peculiar form of broncho-pneumonia has probably been observed by most accoucheurs. It is generally set down as the effect of "taking cold." This explanation Dr. Barnes considers insufficient.]

As in typhoid fever, so in puerperal fever, the lungs are apt to be involved. In either case the cause is similar. I may here observe that a marked characteristic of typhoid fever is extreme alkalinity of the blood. The urine I have frequently found highly ammoniacal on voiding. A similar condition commonly marks the blood in puerperal fever. On one occasion I observed that the bladder, being partially paralyzed, and the urine consequently retained in the intervals of being drawn by the catheter three times a-day, the urine decomposed so rapidly in the bladder as to evolve large quantities of ammoniacal gas, which escaped in a stream with a gurgling sound when the catheter was introduced. These symptoms, with others which need not be enumerated, indicate a discrasia of the blood, which must produce certain irritating effects throughout the body. The diarrhoea of puerperal fever, and the diarrhoea which frequently appears in childbed, apart from overt fever, is the simple effect of the irritation of the intestinal mucous membrane by the septic or other offending matter circulating with the blood. Peritonitis, cellulitis of the limb, synovitis,—all arise in the same way.

Accompanying this diarrhoea, or apart from it, we may have broncho-pneumonia. This, in like manner, is simply the effect of the irritation of the bronchial mucous membrane or parenchyma of the lungs by the same offending matter. In some of these cases the breath of the patient has possessed an odour distinctly resembling that of the lochial discharges. Broncho-pneumonia may, in short, be regarded as a symptom, or a part, of puerperal fever. But in many cases the fever is masked, or so slight that it escapes observation, and the attention is fixed upon the pulmonary symptoms alone.

In these cases there is generally a considerable degree of prostration. The whole or the greater part of the mucous tract of the lungs is involved. The expectation amounts to bronchorrhoea. Large and fine crepitations are heard in almost every part of the chest. The sputa are sometimes tinged with blood. Depletion is not borne. The most successful treatment consists in the administration of cinchona, senega, or serpentaria, in the form of decoction or infusion, with ammonia, and at a later stage with nitro-hydrochloric acid, blisters to the chest, good nourishment, in the form of strong beef-tea, eggs and milk, and a moderate allowance of wine or brandy.

The form of broncho-pneumonia I have thus sketched is not to be confounded with that which is the result of capillary embolia of the pulmonary arteries, although there is this affinity between them, that both are set up by offending matter brought to the lung-tissues by the circulating blood.

The importance of recognising this form of broncho-pneumonia will be admitted when its bearings upon childbed mortality are considered. In some statistical statements I have noticed that certain kinds of death are excluded on the presumption that labour had nothing to do with the fatal result. Bronchitis and pneumonia are thus treated, although to the informed critic the deaths from these causes may be as plainly traceable to the puerperal process as are the deaths from peritonitis.

It is by the complication of this form of pneumonic irritation that I account for the fatal acceleration of phthisis after labour.—*Transactions of the Obstetrical Society of London for 1862*.—*Edinburgh Medical Journal*, June, 1863, p. 1135.

102.—THE USE OF WIRE LOOPS, HORSE-SHOE WIRES, ETC.,
FOR CORRECTING ANTI- AND RETRO-VERSION, OBLIQUITY
AND PROLAPSE OF THE UNIMPREGNATED UTERUS.

By Dr. CHARLES CLAY, Manchester.

(Abstract of a paper read before the Obstetrical Society of London.)

The author, in this paper, endeavours to point out the positive injury done by the use of the generality of pessaries, particularly the old class, which, on account of their cheapness, are still sanctioned by the profession. Improved stem pessaries are shown to be so expensive as to be little applicable to the extent of the evil for which they are proposed. In order to meet this difficulty, the author proposes a new and very simple series of instruments suitable for various malpositions of the uterus, ante- and retro-version, obliquity, and prolapse, and at a cost so extremely small as to favour their general application. These instruments are made of medium-sized copper wire, bent and soldered in a convenient form, and tinned.

Dr. GRAILY HEWITT believed that in the majority of cases of retroflexion of the uterus a mechanical treatment was not applicable; but that in a few cases, on the other hand, such mechanical treatment was required, and in which a cure of the distortion was possible. He had been in the habit of using an instrument, with the results of the action of which he was perfectly satisfied. It consisted of a stem of ivory the length of the uterine cavity, and straight; this stem was mounted on a globular air pessary. The air pessary, when distended with air, maintained the stem in the uterus, and prevented it slipping out. The instrument in question was less liable than others, he believed, to injure the uterus.

Dr. ROUTH said the use of internal pessaries for retroversion was always a hazardous expedient, sometimes giving rise to serious and even fatal results. Dr. Hewitt's instrument he believed to be very ingeniously contrived; but even this failed sometimes to give relief. Dr. Simpson's was very efficient; but that also produced occasionally serious results. One drawback in this and in Dr. Hewitt's was that the stem in utero was too long, and irritated especially the fundus uteri. This part once inflamed was accompanied with far more distressing as well as severe consequences to health. Moreover, it was chiefly due to this fundal endometritis that retroverted womb gave annoyance at all. In the absence of this fundal inflammation, many patients went about with retroverted wombs without inconvenience. Hence one advantage of using short-stemmed pessaries, by which all further irritation at the fundus was avoided. The reason of this distress to patients was obvious. That part of the uterus was supplied by nerves from the renal plexus, and not the inferior aortic, and was therefore in direct nervous relation with the splanchnic nerves and semi-lunar ganglia superiorly, and with the ovaries (also supplied from the same sources) inferiorly. Hence the greater general discomfort. Moreover, Dr. Simpson's instrument fixed the uterus *in situ*, and so every jerk of the body was felt by the uterus. Dr. Hewitt's instrument was likewise too long in the stem, though this might be remedied; but although it admitted considerable freedom of movement of uterus, it was sometimes forcibly ejected by the uterus, because not always firmly secured inferiorly. To meet these difficulties, he (Dr. Routh) had devised a modification. His instrument could sometimes be borne where others were not tolerated. It consisted of a coiled wire bell-spring, covered with caoutchouc, and at about two inches or less from its upper end separated by a gutta-percha disc from the lower portion. Upon the disc, with the coiled wire within the organ, the uterus rested, while the lower end was secured by tapes or a napkin, from ejection. By means of a sound to which the curve of the retroverted uterus was previously given, and then passed within the coil, it might be easily applied. The spring, once the organ was replaced, would by its elasticity maintain the organ *in situ*, while it would not impede full movement of the uterus with the move-

ments of the body. Of course the instrument should not be used till after all inflammation had subsided, under the use of leeches or other local depletion, aperients, &c. Sometimes the use of sponge tents to reduce the uterine volume, after Dr. Moir's plan, was also of great use as a previous measure.

Dr. GREENHALGH stated that among the patients at St. Bartholomew's Hospital, and in private practice, he found misplacements of the uterus extremely common, and productive of considerable distress both in their complicated and occasionally in their uncomplicated forms. In prolapsus and procidentia he strongly recommended the cautious use of a modified Zwanke's pessary, which possessed the advantages of forming a floor upon which the uterus could rest, and took off all tension from the ligamentous supports of the uterus, enabling them to recover their tone; while astringent injections could be thrown into the vagina, with a view of constricting the dilated and relaxed parts forming the floor of the pelvis. In retroversions and retroflexions he had used a great variety of mechanical contrivances, both intra-uterine and vaginal, but he was compelled to admit with little or no benefit. He entirely concurred with most practitioners that all intra-uterine supports should be done away with, on account of the irritation and inflammation thereby occasioned, which had too frequently led to fatal results. The plan he at present pursued in such cases was, first to remove all complications, when possible, by appropriate local and general treatment; and then from time to time to replace the uterus by means of the finger or uterine sound, and in some few cases to introduce sponge tents into the neck of the uterus; thus he had succeeded occasionally in rectifying the faulty position of the uterus, after which, in a small proportion of cases, impregnation had followed.

Dr. BARNES said, in reference to the treatment of retroflexion of the uterus, that he regarded the subject as one of great importance. He had seen severe distress, mental as well as physical, produced by this form of uterine displacement. The treatment was difficult, and not always successful. He had occasionally, by the adaptation of various forms of pessary he had constructed for special cases, however, succeeded in relieving this complaint. With reference to prolapsus uteri, he could not understand how any one largely engaged in the treatment of uterine disease could ignore the value of pessaries if these were constructed on sound principles. It was important to distinguish the varieties of prolapsus. There was one class which occurred in women who had passed the child-bearing age, in which the prolapsus depended upon atrophy of the uterus and absorption of the fat and other tissues, which in younger women padded the pelvis and helped to keep the pelvic organs *in situ*. Wanting this support, the uterus was apt to fall through under straining from cough or from labour. This form he called prolapsus from senile atrophy. It was so purely a mechanical disorder that it required mechanical means as a substitute for the natural support that was lost. Nothing answered so well here as a pessary. The form he used had a small cup which received the uterine neck; this cup was supported on a curved stem so small as not in any way to disturb the vagina, which, on the contrary, was able to grasp the stem and almost to support the pessary by itself. The end of the stem was, however, suspended by elastic bands to an abdominal belt. This elastic support enabled the uterus and pessary to move freely, as in the natural condition, under the various movements of the body. This form of pessary he understood had been in use at King's College Hospital. In a vast majority of cases it answered admirably. He had never less than a hundred women under his care wearing this instrument. It gave complete relief, and enabled them to follow even laborious occupations with comfort. In another class of cases occurring during the child-bearing period, and commonly dependent on inflammation or congestion with enlargement of the uterine neck caused by delivery, pessaries were not so useful. It was often found that the prolapsus was cured by removing the uterine engorgement which caused it. But even here there were cases in which the support and rest afforded by the pessary he had described were of essential service in removing the congestion and in-

flammation. When the uterine neck was prolapsed, the circulation of the blood was mechanically retarded. When the uterus was replaced, the vessels being restored to their natural position, the circulation was freed, congestion and oedema disappeared, the bulk and weight of the organ diminished, and the vagina, being enabled to contract around the stem of the pessary, gradually recovered its tone; and thus the pessary might fairly be said to cure the prolapsus. The value of the stem-pessary in procuring "rest" for the prolapsed uterus, complicated with oedema and engorgement, was, he felt satisfied, not sufficiently appreciated. But the pessary must be well constructed on the principle he had described. The balls, still too often used, which acted only by stretching the vagina and filling the pelvis, only made matters worse, and were the most absurd and mischievous contrivances.

Dr. OLDHAM, being asked by some of the Fellows to give the results of his experience as to the use of pessaries generally, stated that he rejected them; he had tried them all, but had come finally to confine his mechanical treatment to the employment of simple external support by means of a well-arranged pad and bandage, and that only in very bad cases; the internal treatment consisting in the use of the cold douche, and attention to the state of the general health. In very many cases constipation was a troublesome complication. Small doses of aperients were most efficacious; out-door exercise, especially horseback exercise, was most valuable.—*Lancet*, Aug. 25, 1863, p. 249.

103.—ON PELVIC HEMATOCELE.

By Dr. ALFRED H. MCCLINTOCK, late Master of the Dublin Lying-in Hospital.

[Dr. McClinton in his very able work on Diseases of Women, lately published, applies the term pelvic hematocele to an extravasation of blood into the pelvic cavity, either within the peritoneum, or external to this sac. As the blood has no more particular relation to the uterus than to any other pelvic organ, Dr. McClinton thinks it better to use simply this term, pelvic hematocele, and to confine the term uterine hematocele to extravasation of blood into the substance of the uterus. It must always be remembered that though the effusion is spoken of as if it constituted the disease, it is in reality only a symptom or effect of some pre-existing pathological condition.]

The disease is not of extreme rarity, though only recently fully described. Ruysch recorded a *post-mortem* examination in 1691, of a woman who died whilst menstruating, where blood was found in the peritoneal cavity; but we stand chiefly indebted for the first full accounts of it to MM. Recamier, Velpeau, and Bernutz, and within the last 12 years it has attracted much attention, both at home and in France. The hemorrhage may take place within the peritoneum, or external to it, and the intra-peritoneal may be *encysted*, or circumscribed by the adhesions of the peritoneum, or *non-encysted*, the extravasation taking place rapidly, causing a large swelling and endangering life by the shock or amount of effusion. The *extra-peritoneal*, or *sub-peritoneal* form is less dangerous than the other. Some pathologists, indeed, doubt the occurrence of this latter variety; the majority, however, recognise the two forms, and some even affect to be able to diagnose them during life. Dr. McClinton enumerates the sources of the hemorrhage and the symptoms, as follows:

"The sources of the hemorrhage would seem to be various; in the first place, the blood may be discharged from the Fallopian tube, being either an exhalation from its mucous membrane (Trousseau), or coming through this duct from the interior of the womb. In the latter case it is not necessary that occlusion of the os uteri should exist. Retention of the menses has also led to bursting of the oviduct, and consequent formation of pelvic hematocele. Secondly, the blood may come from the ovary itself, at the time of spontaneous ovulation, either in consequence of disease of the organ, or of unusual

hyperæmia. Dr. Tilt and Dr. Genouville argue strongly in favour of this source of the hemorrhage, and the latter physician founds upon it a distinction, very useful, I dare say, in a practical point of view, viz., *catamenial* and *accidental* hematoceles, the former being the more frequent, and more liable to recurrence in the same individual. A modification of this theory has been put forward by M. Gallard, who supposes that very many cases of pelvic hematoceles are due to the pressure of an ovum which had missed the oviduct and dropped into the peritoneum; so that, in fact, they were examples, strictly speaking, of extra-uterine gestation. *Thirdly*, Dr. Puech has drawn attention to laceration or rupture of the utero-ovarian vascular plexus as a cause of the extravasation of blood. *Fourthly*, the hematocele may be produced by a simple sanguineous exhalation from the peritoneum, thus being in some degree analogous to the disease known by the name of hemorrhagic pleurisy. M. Tardieu has described a few cases which would seem to be of this kind.

"*Lastly*, the intra-peritoneal effusion may be but one of the effects of a general hyper-secretion of blood from the genital organs; a species of hematocele to which M. Bernutz applies the epithet 'metrorrhagic,' and which is accompanied, at the time of its formation, by an excessive menstrual discharge from the vagina. It is important to observe, that pelvic hematocele may be produced under the most opposite conditions, viz., in the complete absence of menstrual discharge, and where this is unnaturally profuse. In the majority of cases that have been put on record, the hemorrhage has come from the ovarian vessels, at the menstrual epoch. The quantity of blood which has been effused in some of the instances was very great. Of this I shall have occasion to mention a striking example."

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"The leading *symptoms* which present themselves after the occurrence of this accident are, hypogastric pain and tenderness with febrile action, succeeding to menstrual derangement, sometimes to amenorrhea, but more frequently menorrhagia, preceded, perhaps, by a temporary suppression of the menstrual discharge. A tumour suddenly develops itself in the hypogastric or iliac region, or behind and partly below the neck of the uterus. At first this tumour is soft and fluctuating, but, at a later period, has more firmness. Tenesmus and irritability of the bladder are frequently present also. The character and intensity of the symptoms will mainly depend upon the mode of inception which the disease exhibits. Studied from this point of view, pelvic hematocele may be said to have three forms, or, to speak more correctly, three *modes of invasion*.

"In the *first*, and most severe form, the onset of the symptoms is sudden and overwhelming. The patient is abruptly seized with abdominal pain and rigor, succeeded by utter prostration of strength, cold extremities, pallor of the countenance, which is anxious and pinched; the pulse is rapid, weak, and thready, and the general surface of the body becomes deadly pale. In fact, the patient presents all the symptoms which characterize intense nervous shock, with the addition of violent cramp-like pains in the lower belly. The danger to life, under these circumstances, is imminent. The amount of sanguineous effusion in this class of cases is generally very large, or attended by laceration of some of the pelvic structures.

"*Secondly*, there is a class of cases where the seizure, though plainly marked, is yet unaccompanied by symptoms so alarming or so severe as those just described. More or less rigor, abdominal pains, and faintness are present, but not in such degree as to menace life, or to indicate any immediate danger. We might justly term this an acute invasion, or acute form of the disease; whilst, for the sake of contra-distinction, the former might be called the intense form.

"*Lastly*, there is a sort of chronic form, the symptoms being developed very gradually, and in succession. These are cases where the diagnosis is beset with most difficulty, and there is a great liability of confounding the disease with pelvic abscess, or ovarian tumours. In each of these forms the *symptoms* I have traced belong to the initiatory stage, and attend upon the

extravasating of the blood. It is possible, therefore, as experience has amply proved, for the same case to exhibit two of these groups of symptoms. In case 1, for example, there were, undoubtedly, two attacks, or two successive effusions, the one characterized by chronic, and the other by acute symptoms. In Dr. Madge's case, to which allusion will presently be made, there were also two attacks at an interval of some days; the first attack was an acute one, and in the second attack the symptoms might justly be referred to the first or intense form of invasion. It may be laid down, in a general way, that the ulterior course and symptoms of the disease will take their character from its mode of inception."

On closely analysing the symptoms they are found to be those of peritonitis, more or less acute, of the lower belly; and along with this the rapid development of tumour behind the uterus, or in the hypogastrium, and commonly in both situations. The peritonitic symptoms are easily enough recognised, and the tumour is generally discoverable on superficial examination, but whether its contents be blood, serum, or pus, cannot be positively determined by the most delicate sense of touch, and hence the importance of close attention to what Dr. M'Clintock calls the *commemorative signs*, and the order of their appearance; and the use of the exploring needle, may, when it can be used, afford valuable assistance. In the following passage the differential diagnosis is laid down with Dr. M'Clintock's usual clearness and distinctness:—

"The diseases with which it is most apt to be confounded are the following:—

- "1. Retroversion of the uterus.
- "2. Pelvic cellulitis.
- "3. Ovarian tumours.
- "4. Extra-uterine gestation, and
- "5. Fibrous tumours of the uterus.

"Now let us see what are the most reliable semeiological points of difference between pelvic hematocoele and each of these complaints.

"1. The sudden development of the tumour behind the vagina and the general pelvic uneasiness succeeding to this have caused pelvic hematocoele to be mistaken for retroversion of the gravid uterus. But the far greater severity of the symptoms in the former complaint, the absence of dysuria and of the signs of pregnancy, and above all, the information derivable from a very cautious use of the uterine sound, should always suffice to guard the practitioner from committing such a fault. If the symptoms at all favour the suspicion of pregnancy, of course the sound should not be employed. As retroversion is the more common accident of the two, the error most likely to happen—and which has happened even in skilful hands—is that of mistaking hematocoele for it.

"2. A more excusable error is that of confounding pelvic hematocoele with pelvic cellulitis; and there is sometimes a close resemblance between these complaints. In each of them there are symptoms of local peritonitis, with fever, and the formation of a tumour. Nevertheless there are some important points in the histories of the two cases wherein they differ. Cellulitis, for example, most frequently succeeds to childbed; the tumour is slow in its formation; is always hard at first, and at a later period may, or may not, become soft; it is most often situated in one or other iliac region, and very rarely behind the cervix uteri; and the febrile symptoms always and distinctly precede the marked development of the tumour.

"This is just the description of case in which the commemorative signs must be taken in connection with the physical signs, to ensure accuracy of diagnosis. If the case has been under our observation from the commencement, little or no difficulty will be experienced in recognizing its real nature; but where it comes before us for the first time in the chronic stage, and that reliable or particular information as to its previous history is wanting, then, indeed, there may be ample cause for perplexity. MM. Nélaton and Bernutz—both most experienced observers and very conversant with this disease—have each, under the circumstances last mentioned, mistaken pelvic abscess for pelvic hematocoele. Nélaton punctured the tumour through the

posterior wall of the vagina; an immense quantity of pus, not blood, was discharged, and the woman recovered. The other patient died; when an enormous collection of matter was found in the hypogastric and left iliac regions. This had formed a tumour extending up to near the umbilicus.

"3. Ovarian cysts of small size sometimes descend into the retro-uterine pouch of the peritoneum, and may by adhesions or otherwise become confined to this situation so that their dislodgment cannot be easily effected. With this state of things should any active inflammation be set up in the cyst or its immediate vicinity, a practitioner, ignorant of the existence of the ovarian tumour, might be greatly puzzled about the true cause of the symptoms. A fluctuating feel in the cyst, and the absence of any hypogastric tumour might assist him to a right conclusion, and a few days' observation would probably remove all doubt. Practically, this delay at arriving at a diagnosis could not be productive of harm, as the treatment in either case would be much the same. If it became a matter of importance to solve the question, this could be done at any moment with the assistance of an exploring needle. Professor Braun's experience leads him to regard exploratory puncture as the only absolutely sure means of diagnosing between ovarian tumours and pelvic hemocele.

"It is important to keep in mind, as bearing on the diagnosis, that in nearly every case a tumour is developed behind and below the os uteri, from the blood gravitating down into the pouch of Douglas. It is extremely rare for an ovarian cyst to hold precisely this situation. More generally it is to one side or the other, and tends to displace the uterus downwards, and toward the side of the pelvis opposite to that in which the tumour is developed.

"4. Rupture of the cyst in extra-uterine foetation is an accident which may be followed by a train of severe pelvic symptoms in no way distinguishable from those of hemocele. The prognosis would certainly be much graver, as rupture of the gravid cyst is almost always followed by death; but beyond this I do not see that failure to discriminate between them would be of any material consequence. As a general rule we might expect more alarming symptoms to supervene on the giving way of a gravid extra-uterine cyst; and if such symptoms developed themselves in a patient who had previously manifested well-marked indications of pregnancy, the highest degree of probability would then exist that the case was one of extra-uterine gestation ending in rupture of the cyst.

"5. One unacquainted with the infinitely varying phases of disease could scarcely think it possible that any confusion of diagnosis could ever arise between fibrous tumours of the uterus and pelvic hemocele. Nevertheless serious difficulty may present itself on this head. M. Bernutz alludes to a case under M. Goupil at the Hotel Dieu, in which the differential diagnosis between fibrous tumour of the uterus and pelvic hemocele could not be established, so many features did the case possess in common with both these diseases. M. Malgaigne, and Professor Stoltz (of Strasburg), have each committed the error of mistaking a pelvic hemocele for a fibrous tumour of the uterus. Malgaigne actually proceeded to remove the supposed fibroid by enucleation, and with this intention made the preliminary incision of the os uteri, when the hematic cyst was opened and the true nature of the case brought to light. The patient died in eighteen days afterwards. It is important to note, that in each of these cases the retro-uterine tumour, caused by the effused blood, presented no exceptional physical character; it was soft and fluctuating as hemocele always is. M. Stoltz's patient also died, and the existence of the hemocele was discovered at the necropsy. So confident was he that she had uterine fibroid, that he made her case the subject of several lectures on the diseases of which she was supposed to be an example. For some time before the acute symptoms seized her, the patient of M. Malgaigne had several attacks of simple metrorrhagia; and this strongly corroborated the idea of a fibrous tumour being seated in the uterus; which tumour, it was supposed, had been the cause of the hemorrhage and of the pelvic peritonitis."

The medical treatment of these cases resolves itself into the treatment of

the stage of shock or depression; secondly—that of reaction and inflammation; and thirdly—the chronic stage. Authorities are divided as to the propriety of surgical treatment—that is, as to the puncturing of the cyst; and on this point Dr. McClintock says, that with his present impressions he would not be inclined to resort to the trocar, unless urgent symptoms were manifested in consequence of the bulk or mechanical pressure of the tumour, and not even then unless it were in the chronic stage, an opinion in which we fully concur.—*Dublin Quarterly Journal, May, 1863, p. 398.*

104.—ON ERUPTIVE FEVERS IN PUERPERAL PATIENTS.

By Dr. J. Y. SIMPSON, Professor of Midwifery in the University of Edinburgh.

[This subject was brought before the Edinburgh Obstetrical Society by Dr. Simpson, in consequence of having been lately called to see, in consultation, two cases of puerperal scarlatina.]

Case 1.—The first patient was a young primipara, who, at a distance from Edinburgh, was confined after a labour of no unusual difficulty, and remained well till the second day after her confinement, when the pulse rose, and she became so delirious that it was thought she was labouring under an attack of puerperal mania. When he (Prof. S.) saw her first on the third day, the delirium had subsided; but a scarlatinal eruption had broken out over the body. The eruption was of a character so indefinite, as to leave some doubt as to whether it might not be due to the rubefacient action of the turpentine stupes that had been freely employed. Next day, on returning to see the patient, he was told that the eruption had disappeared. It reappeared after a time and again disappeared; and came and went in this way for a couple of days till the patient died. She had had scarlatina some years before. This time there was slight sore-throat, but not much; and the diagnosis had been very difficult at first, and the case peculiar, in that the premonitory symptoms seemed rather to point to mania than to any kind of eruptive disease.

Case 2.—In the second case, on the second or third day after the birth of a fourth child, the patient fevered and showed a scarlet eruption all over the face, trunk, and limbs. The tongue and throat were clean; but the pulse was so weak and quick, that he (Prof. S.) had been led to form but a gloomy diagnosis. She had, however, ultimately recovered. Probably all the Fellows had seen such cases; and he would like just to make this remark, which was applicable alike to small-pox, measles, and scarlatina, that when they occurred in a pregnant female they very rarely proved fatal to her; whatever the date of pregnancy might be; or if they did not attack her till ten days or a fortnight had elapsed after her confinement, they were not specially dangerous; but whenever they appear in a woman within six or eight days after her delivery, they are always alarming and very often fatal.

Case 3.—Rather more than a year ago, a lady who had been placed under his care, died very suddenly of measles coming on shortly after delivery. The disease had appeared in one of the children more than a fortnight before the period of her confinement was due, and he had her immediately separated from the family, who were staying about two miles out in the country, and brought into town, and no kind of direct communication was allowed to take place between the two houses. Her labour, her thirteenth, was effected on a Wednesday, without any notable peculiarity, and she continued well for some days thereafter. But on the Sunday afternoon she had a tremendous rigor, which was succeeded in the evening by a high degree of fever, and during the night by great restlessness. Copious perspiration and a free evacuation next forenoon greatly relieved her; but in the afternoon the rigor returned, succeeded by a high fever, with burning hot skin and rapid pulse. Towards morning the brow became rough and red, and it seemed for a time as if an eruption were about to break out on the face. The pulse came down a little during the forenoon; but the rigor having recurred in the third afternoon, the patient sank and died, fifty-two or fifty-three hours after the

occurrence of the first shivering-fit. The post-mortem examination, which was made by Dr. Turner, revealed no special local lesion other than those changes which are found in the liver and other glandular organs in patients dying of rapidly destructive fevers. It would, perhaps, have been impossible to say with absolute certainty that this puerpera died of an attack of measles; but at the time of her death, he (Prof. S.) had no doubt as to the nature of her attack, and his opinion was confirmed when, some days afterwards, an eruption of measles appeared on the baby, although it had been kept away from the infected household.

The remarks he had made with regard to scarlatina and measles held good with respect to small-pox also. There were many cases on record where small-pox, having attacked a pregnant woman, had run its course without producing any very alarming symptoms in herself, though it caused the death of her intra-uterine offspring. But when it came on within a short period after delivery had been effected, it was extremely dangerous.

Case 4.—A patient who had been delivered in the Lying-in Hospital last month, had been seized with small-pox seven days after her confinement. There was a distinct vaccination-scar on her arm. There was not a very profuse crop of vesicles; but on the tenth or eleventh day, some petechiae spots appeared on the chest, which multiplied in number and increased in size till some of them looked like ecchymoses; and on the sixteenth day she died.

With regard to diagnosis, he might remark that it was not always very easy at first sight to determine the nature of the case, when a puerperal woman became the subject of an eruptive fever. He once saw a case along with Dr. Newbigging, where some of the symptoms looked like those of scarlatina, but no eruption whatever could be detected. Some of the children, however, afterwards became ill, and in them the scarlatina eruption was quite distinct. The case was the more remarkable that a sister of this lady, who had also been recently confined, but who was living in the country, and had no communication with the infected household, except through the doctor, was attacked with scarlatina and died also. He (Prof. S.) did not agree with Dr. Ramsbotham in supposing that the poison of the special epidemic fever was retained in the system of a puerperal woman some time before it broke out; he rather believed that it ran in them its usual course. It was difficult to determine the cause of the great fatality of these fevers in such patients; but it was probably due partly to the weakened condition of the system, but still more to the presence at that time in the blood of a quantity of effete material, which was ready to be thrown into a kind of septic destruction whenever the materies morbi was introduced.—*Edinburgh Medical Journal*, June 1863, p. 1145.

105.—SORE NIPPLES.

By Dr. WILLIAM H. CASTLE, Portsmouth.

[The plan of treatment recommended by Dr. Castle is one very likely to prove successful. In a very obstinate case related by him he says:]

The nipples and their areolæ being fissured, bleeding on the slightest touch, and so painful that the application of the child was dreaded, on account of the torture to which the mother was subjected, I employed a slight coating of the tincturæ benzoin co. to arrest all bleeding, and having carefully dried the parts with a soft muslin handkerchief, I applied a solution of gutta percha, so as to completely surround the nipple and cover all abrasions, giving it three or four coatings, allowing each to dry thoroughly before repeating the application. During the act of suction (only) a boxwood shield, with calf's teat, was used, and in the course of a few days all was well.

I make the solution thus:—Gutta percha tissue, 3j.; chloroform, 3iij.; first place the tissue in a bottle, add the chloroform, shake, and it will soon dissolve.

The film rapidly formed by the evaporation of the chloroform is firm, elas-

tic, and harmless, and, should it rub off, is very easily replaced. The almost painless nature of the treatment, the effectual protection from the contact of the air and irritation of the infant's mouth, recommend it strongly to general use. I have also used this solution with great benefit in several minor cases of surgery instead of collodion.—*Medical Times and Gazette*, October 10, 1863, p. 396.

106.—ON THE THROMBOSIS AND EMBOLIA OF LYING-IN WOMEN.

By Dr. R. BARNES, Physician to the Royal Maternity Charity; Assistant-Obstetric Physician to the London Hospital; Lecturer on Midwifery at St. Thomas's Hospital.

The condition of the blood in pregnant and lying-in women, if thoroughly understood, would furnish the key to much of the pathology of child-bed diseases. That fevers, phlegmasia dolens, and eclampsia, are connected with certain departures from the normal conditions of the circulating fluids, will not now, I believe, be contested. But there is one puerperal affection in which the changes wrought in the blood are invested with a peculiarly striking interest. At a period more or less closely approaching delivery, a woman may be seized with fainting, intense pain in one or more limbs, followed by swelling, arrest of pulsation, loss of heat, gangrene, and perhaps death. What are the antecedent conditions that can lead to this sudden catastrophe? A complete answer to this question would, there cannot be a doubt, indicate the means whereby this catastrophe might, in some cases at least, be averted. In all the cases in which the series of events above enumerated have been observed, and which were subjected to post-mortem examination, clots have been found in the main arteries of the limbs affected.

In another class of cases we witness sudden faintness, irregular action of the heart, distressed breathing, quickly increasing collapse, and rapid death. In these cases it is found that the pulmonic circulation is almost exclusively concerned, and clot-obstructions are discovered in the right heart and pulmonary arteries.

What are the causes which can give rise to coagulation of the blood in the living body? Here is a case in which the physician might, perhaps, be entitled to call upon the chemist for assistance. That organic chemistry has of late years made enough of progress to raise the hope of more effective aid to medicine than has hitherto been acquired, may be freely admitted; but in regard to the particular problem now submitted, we must, I fear, be content for a while to rely mainly upon medical observations. In our search for a solution we must steadily accumulate all apposite observations, in order to multiply the elements of comparison. The cases actually on record are not numerous; but it can hardly be doubted that if cases of sudden death in child-bed had been more closely investigated by dissection, the list might have been greatly extended. It is also certain that if attention be steadily directed, under the light of the few recorded cases, to clinical obstetrics, future experience will be less barren than the past.

The following case is of value as a contribution to the slender mass of facts bearing upon the subject.

Case.—*Swelling of right leg after labour; gangrene; death.* Mrs. C., the wife of a surgeon, was thirty-one years of age when she was delivered, on the 23d February, 1854, of her fourth child. She was attended by Dr. Abraham, who described the labour as easy; the placenta came away entire, and the uterus contracted well. She appeared to be going on favourably, suffering, however, much more from after-pains than on previous occasions, until the 2nd of March. The lochial discharge and the secretion of milk continued as usual. She took little nourishment. On March 2nd she was much irritated and excited by the nurse, who did not manage the child properly. She got up in the bed (perhaps was chilled), and was violently agitated. I was sent for late at night, and found her restless, agitated, hysterical, complaining of spasmodic pains in the abdomen. She could bear pressure; it even seemed

to relieve her. Pulse 120. She took ten minims of compound spirits of ammonia, twenty minims of sedative liquor of opium, and twenty minims of ether. She complained that this caused a burning pain in the stomach. On the morning of the 3rd Mrs. C. seemed calmer; the pulse seemed more subdued, having fallen to 100; the pain was relieved; the tongue was red at the tip and round the margin, the papillæ in the centre raised, covered with white fur, and moist. She had taken a saline aperient, which acted fairly. On the morning of the 4th she still appeared to be improving; the pulse ranged from 90 to 110 and back again during the day; the pains in the abdomen were less, but still reappeared spasmodically. On the 5th I was sent for hastily at 9 a. m.; the pains had increased; there was great tenderness all over the abdomen, especially in the region of the uterus; considerable tympanitis; pulse 120, feeble; skin moist, warm; tongue as reported on the 3d; countenance anxious; she felt as if a tight cord were drawn round the abdomen; dyspnoea. At 1 p. m. Dr. Oldham shared with me the anxieties of the case. He agreed that the uterus was enlarged, and that there was probable phlebotic mischief. The patient could still move and extend her legs freely; there was no tenderness in the legs, or in the groins in the neighborhood of the large vessels; the uterus was inclined towards the left side; there was marked depression. She took a gentle saline aperient, which acted, and liquor cinchonæ, with liquor opii sedativus, every four hours. Nourishment and wine were freely administered.

6th, 9 a. m. The pain in the abdomen was better. She bore pressure everywhere, except over the uterus; great tympanitis; some dyspnoea; does not seem to have lost ground.

7th. Still tympanitis and dyspnoea; free from pain on pressure over the abdomen, but there is soreness over the uterus, which, however, seems diminished in bulk; some discharge per vaginam to-day; tenderness in right groin, pain as if after cramp in the right calf; can, however, move the leg freely, and there is no swelling. The tympanitis was relieved by an assafoetida enema, which brought away some fæces as well as wind. No pulsation in right posterior tibial artery. At night she had taken some nourishment.

On the 8th, at 9 a. m., there was pain in the region of the uterus, in the calf and ankle of the right leg; there was slight tumefaction in the groin, but no pain. At 10 a. m. Mrs. C. suddenly fainted. She was restored by stimulants. At noon she was seized with the most excruciating pain in the ankle and calf. I think I never beheld suffering so intense. In her agony she implored her husband to cut off her leg, or to let her die. The pulse was 160. The skin was moist and relaxed; tympanitis; liquor opii taken in free doses seemed to exercise no effect. Towards night the intensity of the pain subsided; there was some fulness and pain in the groin; considerable swelling of the ankle, calf, and thigh; still she could bend the knee; on the inner side of the ankle the swelling shows a red blush. At midnight the pulse was 160; there was great prostration, but the intellect was clear. She had taken, with beef-tea, wine and liquor cinchonæ up to this time. An assafoetida enema again relieved the tympanitis and dyspnoea. The urine, which all through had been passed freely, although high-coloured and depositing lithates, was still secreted. On the 9th, at 4 p. m., it was found that the leg, between the calf and ankle, was in a state of gangrene. At 9 a. m. the gangrene had plainly extended; she was now sinking, but in perfect possession of her intellect. She died at 11.

No post-mortem examination was made, but the history of this painfully interesting case can leave little doubt as to the cause of the fatal issue. A coagulum had obstructed the right external iliac or the femoral artery. Mortification had ensued as effectually and as rapidly as if the artery had been ligatured.

To avoid, at least, those fallacies which are apt to arise from speculations upon isolated cases, I propose to range together such cognate cases as the scanty leisure at my disposal has enabled me to gather. The history of blood-coagulation in the living body is not all of such recent date as has been sometimes imagined. Drs. Richardson and Cohn justly remark that similar

facts and arguments to those which have of late years engaged the attention of the profession were known and discussed by Vesalius, Lancisi, Morgagni, Kerkringius, Pasta, Gould, Burserius, Templeman, Quaye, Brown, Cullen, Chisholm, Huxham, and others. But, not to disparage ancestral labours, it must be admitted that contemporary authors have, by more accurate observation, given greater precision to our knowledge of the subject. Amongst the writings that more especially deserve study are those of Baron, Paget, Kirkes, Virchow (1846), Simpson, Richardson, and, lastly, Cohn (1860). The greater part of these writings bear chiefly upon obstructions of the pulmonic circulation and occlusion of the cerebral arteries.

The memoir of Simpson is chiefly valuable as containing the best collection of cases of obstruction in the arteries of the limbs in connection with the puerperal state.

[Dr. Barnes then relates a series of fifteen cases. Five of these are distinguished by a prior complication with rheumatism, a disease which in non-puerperal cases has been frequently found associated with embolia. In one case the symptoms appeared as early as the second day, in another as late as seven weeks after labour. In eight cases the indications of gangrene arose in less than fourteen days.]

In twelve fatal cases death ensued in from eleven days to three months. In two instances recovery took place.

It is clear, from the history of these two cases, and from what is known of the history of aneurism and other forms of arterial obliteration, partial or complete, that a collateral circulation may, under favourable circumstances, be established; or that if gangrene be not averted, the necrosed portion may be thrown off, life being preserved by the sacrifice of a part of the body.

In those cases which are related most circumstantially there appear to be certain premonitory symptoms, whether of the formation of coagula in the heart or of their transport into the arteries. Dyspnoea, syncope, and irregular action of the heart are mentioned. But in some cases these symptoms have either not occurred or have escaped attention. The earliest condition recorded is pain in the limbs that have been subsequently more overtly attacked. It is especially worthy of recollection for diagnostic purposes that this pain has generally been of the most excruciating kind.

In nine cases special words are used to denote intensity of pain. The same symptom has been observed in non-puerperal cases; and Gaspard and Cruveilhier record that violent pain constantly attended the injections of foreign substances into the arteries, whilst injections into the veins were painless. The pain generally has remitted, and the signs of mortification have appeared. Pulsation has ceased in the arterial trunks leading to the affected limbs; loss of heat and some degree of swelling have followed, then loss of sensation, then gangrene. In cases complicated with rheumatism signs of cardiac disease have been diagnosed.

[Dr. Barnes then gives another series of fourteen cases, from a comparison of the histories of which the following interesting points in the pathology of the affection are made out.]

1. It is especially noted in six cases that there were clots in the peripheral veins, as the crural, iliac, hypogastric, or uterine; and also that signs of phlebitis or of uterine inflammation preceded, often by long intervals, the symptoms of pulmonary distress.

2. The first or peripheral symptoms arose in from twenty-four hours to three days after labour; the secondary or pulmonic symptoms occurred at various periods, from four days to more than twenty after labour; death occurred in from four to twenty-eight days after labour.

3. In eight cases the death was more or less sudden; in these cases there was great precordial distress, syncope, and dyspnoea.

4. In the cases suddenly fatal it was generally found that not only were the main branches of the pulmonary artery filled with coagula, as well as the smaller ramifications obstructed, but that clots existed in the right heart.

5. In the cases where death was more gradual the symptoms of pneumonia had time to develop themselves.

6. In the gradually fatal cases it was found that the smaller ramifications of the pulmonary artery were obstructed.

It seems reasonable to conclude that the sequence of events in pulmonic embolia is as follows :

1. There is a dyscrasia of the blood immediately proceeding from the puerperal process, which is favourable to the production of clots in the uterine veins and veins of the lower extremities. Imperfect contraction of the uterus, the formation of putrilage in the uterine cavity from the admission of air, which acts upon the blood and serum squeezed out of the vessels and the remains of adherent placenta or of decidua, are often the immediate antecedent conditions of peripheral thrombosis. This process is also favoured by the retardation of the circulation in the veins of the uterus and lower extremities, resulting from pressure. We are, indeed, familiar with tortuosity, and thrombosis of the crural veins in pregnant women.

2. The next step is that of embolia. Portions of the peripheral thrombi, attended, no doubt, in many cases by septic matter derived from the uterus, are carried to the right heart. If the solid matters be large enough, or the septic or ichorous matters be irritating enough, to cause a violent perturbation of the heart's action, and to act chemically upon the blood-mass, rapid coagulation of blood in the right cavities may ensue, followed by a similar process in the larger pulmonary arteries. In such cases sudden death occurs.

3. But in those cases in which either minute portions of thrombi are taken up from the peripheral veins or where the septic or ichorous matter is less virulent, no clot may form in the right heart, but minute emboli may be carried into the finer divisions of the pulmonary artery, causing lobular pneumonia, ending in slower death, or possibly in recovery.

Pure thrombosis of the venous system, that is, uncomplicated with blood-dyscrasia or fever, is not often fatal. It can only become dangerous when, from some accident, portions of peripheral clots are carried to the heart.

It would, however, be unsafe in the actual state of our clinical experience in this subject, to adopt without reserve, as explaining all cases, the doctrine of Virchow, that arterial-clot obstructions are the result of emboli brought from a distance by the circulating current. As far as careful dissection can show, there seems good reason to conclude that obstruction of the pulmonary arteries may arise from primary, sudden, or gradual formation of clots in those vessels themselves.

4. It has been noticed that in many of these cases some mental emotion or sudden exertion has immediately preceded (and has seemed to be the exciting cause of) the cardiac and pulmonic distress. It seems to me that this association may be explained by the temporary retardation of the blood-current which is occasioned, and which offers a momentary facility for the chemical action of the septic or ichorous matter upon the blood. Possibly, also, sudden exertion may favour the detachment of portions of thrombi from the systemic veins.

But whatever be the explanation adopted, it is difficult to avoid the conclusion that in some of the cases known, the fatal catastrophe might not have occurred had the patient been kept in a condition of mental and bodily repose.

It would be an unjustifiable trespass upon the time of the Society were I to enter upon speculations concerning the causes of the coagulation of the blood in the order of cases which form the subject of this paper. The question is one still keenly debated by physiological experimentalists and pathologists. I refer to the works of Virchow, Richardson, and Cohn, for information respecting this matter.

The important question of treatment is obviously closely dependent upon that of etiology. Upon this question want of leisure compels me to touch very lightly. Although there are cases to prove that neither the pulmonic nor the systemic forms of thrombosis and embolia are necessarily fatal, yet it must be acknowledged that our main attention should be directed to prophylactic measures. These should begin with the utmost care for securing a healthy condition of the blood during pregnancy. Exercise in the open air, and thorough cleanliness of the whole skin—too much neglected—good

diet, and occasional doses of aperient medicine, are the chief measures. During labour care should be taken to ensure the due and regular contraction of the womb, avoiding as much as possible what is called "kneading," which is another name for bruising, the uterus, and the violent and irregular contraction apt to be produced by ergot. I have certainly seen uterine inflammation caused by the action of ergot.

During the puerperal state the point of first importance is to encourage lactation. There is no agent of equal efficacy in maintaining healthy contraction of the uterus, of promoting its regular involution, and thus of averting many puerperal disorders. The next points are to enforce the recumbent position, to remove all causes of mental or bodily disturbance; not to starve the patient, and thus to give activity to the absorption of foul matters, but to supply the circulating fluid with generous materials.

When prophylaxis is at an end, when we have to deal with the present disease, we must continue the same general treatment, adding bark, stimuli, and the mineral acids. Regarding the alkaline character of the blood in most puerperal diseases, and especially the happy results I have long been accustomed to witness from the administration of nitro-hydrochloric acid in typhoid fever and in puerperal fevers, I insist warmly upon this remedy.

If we adopt Dr. Richardson's theory, that ammonia is the agent which keeps the blood in the living body in a fluid state, we should naturally be led to administer ammonia freely, with the view of dissolving the clots in the heart and the obstructing clots in the arteries. But, without entering upon the general argument, I must state that I do not anticipate any advantage from ammonia given for any length of time. Blood contaminated by puerperal process, and especially when affected, as it commonly is in these cases, is already prone enough to acquire the alkaline condition which attends the action of septic matter. I may also add that direct clinical observation leads me to reject the use of ammonia in these and in analogous puerperal maladies. Ammonia in the blood may be taken as a constant exponent of exhaustion and of the action of poisonous and depressing agents. It seems contrary to all sound therapeutical reasoning to administer more when there is already too much. Besides, I am not aware that we have any satisfactory evidence to show that we possess in ammonia, or in any other substance, the means of exerting a solvent action upon clotted fibrine in the living body.

The successful issue of Mr. Bottomley's case may suggest the expediency of amputation in certain cases of embolia of the extremities. The course, however, of that case appears to have been exceptional. The strictly puerperal affection is primarily and essentially of cardiac origin; the entire mass of circulating blood is poisoned or degraded; clots are obstructing the main arteries leading to the limbs, at a point, perhaps, much above the seat of gangrene; in most cases no line of demarcation forms. The uselessness of amputating under these conditions has been long recognised. These conditions differ widely from those of senile or inflammatory gangrene, where the obstructions are capillary and strictly local. The case of Dr. Cowan is an apt clinical illustration. Not a drop of blood followed amputation. The patient died next day. There was, in all probability, obstruction of the external or common iliac artery, quite beyond reach of relief by the knife. In Mr. Bottomley's case the general or constitutional symptoms remitted; the patient having survived the first impetus of the disorder, the affection became entirely localized in the leg; a line of demarcation formed, and although there was obstruction of the arterial trunk high up, a sufficient amount of collateral circulation had become established to nourish the stump. So gradual was all this that the amputation was not performed until some months had elapsed.

In post-rheumatic cases, however, the gangrene may be the result of pure embolia, uncomplicated with dangerous blood dyscrasia. Here it is possible that amputation may occasionally be resorted to.

To compass a complete view of the wide subject of thrombosis and embolia, it would be necessary to include the study of those not infrequent cases in which the *blood coagulates in the veins of the leg after pregnancy*,

without giving rise to all that train of symptoms which constitute phlegmasia dolens. These cases are rarely very serious, although important in illustration of the graver varieties of blood-coagulation during life.—*Obstetrical Transactions, Vol. IV., 1863, p. 30.*

107.—ON THE BRONCHO-PNEUMONIA OF LYING-IN WOMEN.

By DR. R. BARNES, Physician to the Royal Maternity Charity; Assistant-Obstetric Physician to the London Hospital; Lecturer on Midwifery at St. Thomas's Hospital.

[The following is appended as a note to the preceding valuable article on thrombosis and embolia, as there is a close relationship between this subject and what may be called puerperal broncho-pneumonia.]

I have long been familiar with the fact that lying-in women are liable to a peculiar form of broncho-pneumonia. It is generally considered that the pulmonary symptoms which arise during childbed are the consequence of violent straining attending the expulsive stage of labour, and of "taking cold" during the exposure sometimes incident to that event. To me this explanation is far from sufficient. As in typhoid fever, so in puerperal fever, the lungs are apt to be involved. In either case the cause is similar. I may here observe that a marked characteristic of typhoid fever is extreme alkalinity of the blood. The urine I have frequently found highly ammoniacal on voiding. A similar condition commonly marks the blood in puerperal fever. On one occasion, I observed that the bladder, being partially paralysed, and the urine consequently retained in the intervals of being drawn by the catheter three times a day, the urine decomposed so rapidly in the bladder as to evolve large quantities of ammoniacal gas, which escaped in a stream with a gurgling sound when the catheter was introduced. These circumstances, with others which need not be enumerated, indicate a dyscrasia of the blood which must produce certain irritating effects throughout the body. The diarrhoea of puerperal fever, and the diarrhoea which frequently appears in childbed apart from overt fever, is the simple effect of the irritation of the intestinal mucous membrane by the septic or other offending matter circulating with the blood. Peritonitis, cellulitis of the limbs, synovitis—all arise in the same way.

Accompanying this diarrhoea, or apart from it, we may have broncho-pneumonia. This, in like manner, is simply the effect of the irritation of the bronchial mucous membrane or parenchyma of the lungs by the same offending matter. In some of these cases the breath of the patient has possessed an odour distinctly resembling that of the lochial discharges. Broncho-pneumonia may, in short, be regarded as a symptom, or a part, of puerperal fever. But in many cases the fever is masked, or so slight that it escapes observation, and the attention is fixed upon the pulmonary symptoms alone.

In these cases there is generally a considerable degree of prostration. The whole, or the greater part of the mucous tract of the lungs is involved. The expectoration amounts to bronchorrhoea. Large and fine crepitation are heard in almost every part of the chest. The sputa are sometimes tinged with blood. Depletion is not borne. The most successful treatment consists in the administration of cinchona, senega, or serpentaria, in the form of decoction or infusion, with ammonia, and at a later stage, with nitro-hydrochloric acid, blisters to the chest, good nourishment, in the form of strong beef-tea, eggs, and milk, and a moderate allowance of wine or brandy.

The form of broncho-pneumonia I have thus sketched is not to be confounded with that which is the result of capillary embolia of the pulmonary arteries, although there is this affinity between them, that both are set up by offending matter brought to the lung-tissues by the circulating blood.

The importance of recognising this form of broncho-pneumonia will be admitted when its bearings upon childbed mortality are considered. In some statistical statements I have noticed that certain kinds of death are excluded, on the presumption that labour had nothing to do with the fatal result. Bronchitis and pneumonia are thus treated, although to the informed critic

the deaths from these causes may be as plainly traceable to the puerperal process as are the deaths from peritonitis.

It is by the complication of this form of pneumonic irritation that I account for the fatal acceleration of phthisis after labour.—*Obstetrical Transactions*, Vol. IV., p. 55.

108.—ON THE NATURE, TREATMENT, ETC., OF PUERPERAL PERITONITIS.

By JOSEPH THOMAS MITCHELL, Esq.

[We give the following paper of Mr. Mitchell's, but need hardly say that his practice at the present day would be followed by but few practitioners.]

In the winter of 1825, Mr. Mitchell was present at what was then called the "celebrated lecture of Dr. Armstrong on puerperal fever," delivered at the Maze Pond School of Medicine. The treatment he recommended was bleeding to syncope, followed by the administration of large doses of opium, by which all peristaltic action of the bowels would be suspended, and the excessive alarm and consequent irritability of the whole nervous system subdued, at the same time enjoining implicit rest to the patient in the recumbent position, and applying extensive counter-irritation over the whole abdominal surface. The lecture was listened to by an immense crowd of practitioners from all parts of London.]

I left the lecture, which occupied two hours in being delivered, with feelings very different from those with which I had gone away from the theatre at Guy's after having heard Dr. Blundell's lecture on the same subject a few years before. On my arrival at home, strange to say, I found an urgent message awaiting me, that my immediate attendance was required on a poor woman who had been delivered two days previously, and who was suffering excruciating pain, and had sent for me several times within the past hour. I went to her immediately, when, to my dismay, I found myself confronted for the first time with the direful enemy which I had so much feared. I immediately put in practice Dr. Armstrong's remedies, and the result was that I had the gratification of seeing my patient snatched from what appeared to be impending death. After the pleasing termination of this case my inordinate fears in having to contend with this disease subsided, and from that time to this I have always adopted the same practice, and with almost the same invariable success.

What is puerperal peritonitis? It is a disease marked by the following symptoms, occurring under the following circumstances. A woman in apparently normal condition of health or otherwise, who may or may not have received some shock or accident, is taken in labour, the process of which is either natural, easy and quick, or lingering and preternatural; it may have required manual or instrumental aid, or it may have been accomplished without either. After delivery, all the attendant circumstances may give hope of a speedy recovery to health and strength, or it may be otherwise; generally, on the second or third day after delivery, she begins to feel pain in the abdomen, slight, perhaps, at first; but from time to time it becomes augmented, as it were, by slight colic or spasmodic action of the intestines, which may be taken for ordinary afterpains; this condition lasts, perhaps, for an hour or two, or even for a day, when suddenly she is seized with a violent spasm in the belly, which is quickly succeeded by a fit of shivering, more or less severe; this ushers in symptoms alarming to the patient and all around her, who become impressed with the belief that death is fast approaching; her countenance has become pale, shrunken, and deeply anxious in its aspect; her extremities cold; her pulse almost uncountable, and scarcely discernible, from quickness and feebleness; by this time the most excruciating, permanent pain is felt over the whole internal abdominal surface, which is greatly augmented by the slightest pressure made externally, and this all present without retention of urine or other accountable cause; in

deed, she is in a condition not unlike that which speedily follows the taking of corrosive mineral poison, except that there need be no vomiting, and from which, if she be not speedily relieved, will be followed by swelling and tenderness of the abdomen, produced by the rapid outpouring of serum, coagulable lymph, and pus, which, in some instances, is even attended by sloughing of small patches in the membrane, as has been seen in post-mortem examinations.

The question then is, have we any means to prevent such results? My answer is, we have none except what are most active in their operation, and that require to be applied with the earliest and greatest promptitude. Under these impressions, in order that I might be ready promptly to apply my remedies when such emergencies may occur, my rule has always been to instruct the parish midwives, and others in attendance on lying-in women, immediately to send for me whenever any symptoms might appear, such as I have described as characteristic of the approach of this disease. This rule has often given me unnecessary trouble, when no real cause for alarm has existed, but it has enabled me promptly to apply my remedies where it has.

Then, what have been these remedies? Bleeding to a greater or less extent, generally adopted but once, yet in some instances, twice, and in some few cases even thrice, followed by the administration of full, almost poisonous, doses of opium, and then extensively irritating the whole abdominal surface by fomentations of hot water and turpentine, or by the application of large sinapisms; at the same time enjoining the strictest quiet, and confining the patient in the horizontal position on her back, even when called on to pass her urine, taking care to prevent all action of the bowels, during even four or five days, if necessary, and then to relieve them only by an injection of gruel and turpentine, and not by any purgative given by the mouth. Indeed, I urgently warn every practitioner against administering any purgative by the mouth during the continuation of any symptoms of this affection.

Perhaps many will exclaim—"What! bleed a woman in whom life appears almost already extinguished, as is evidenced by the depressed condition of the nervous system, and by all the other attendant symptoms! And how can you bleed a woman almost pulseless, with cold extremities, and apparently sinking? A vein may be opened, but no blood can flow." Under such circumstances the operation may appear to be difficult; but by preliminary preparation the difficulty will be removed. Let the hands and the feet of the patient be placed in water, as hot as can be borne, for a short time; then tie up the arm, when the veins at the bend will be found to be distended, and easy to be opened. At first the blood will flow slowly, but very soon, as the operation proceeds, and the engorged congested vessels of the inflamed membrane become relieved, the blood will flow freely; the heart, which, under the direction of the alarmed nervous system, had almost ceased to push the blood forwards to the diseased surface, where a destructive process had begun, recovers its action, contracts more firmly and normally, and the blood becomes freely and equally circulated throughout the whole system, and the circulation being restored, the blood is made to flow "pleno-vivo," until, as the overloaded vessels of the affected part become more relieved, the excruciating pains in the abdomen are lessened, perhaps entirely removed, never to return; when, by producing almost narcotism and active counter-irritation, the violent action commenced in the peritoneum, and which must, if left unchecked, become speedily disorganizing, is directed to the vessels of the skin, and nature, relieved from her alarm, gradually recovers her normal action.

I am aware that, in advocating this plan of treatment, I am placing myself at issue with the generally received opinions of the present day. I expect to be told that disease is always of asthenic origin, and that an asthenic condition is the cause of its perpetuation, and that the cure is only to be hoped for in the adoption of repleting and stimulating, rather than depleting, means; but my answer is in the result of the practice.

Of the four fatal cases among the twenty-seven cases treated, the first that died was one to which a physician-accoucheur, then of repute, was called in during the progress of labour, in consequence of a large thrombus having formed high up in the vagina, by the giving way of a large varicose vein in labour, when the tumour prevented the descent of the child's head. In that case I wished to divide the tumour by a longitudinal incision, made parallel to the axis of the passage, thereby to allow the blood to escape, and then to let the head pass over it by the natural expulsive efforts of the uterus, as there was ample space in the bony canal to allow of transit through it; but to this the friends of the patient objected, and then I sent for this gentleman, who also objected to my suggestion, and he immediately applied the forceps to the head, and delivered hastily, by dragging it violently over the tumour, which, of course, burst under the pressure, and by which the vagina was much lacerated, even to the vulva. Peritonitis followed, and death.

In the second case death was accelerated, if not caused, by the injudicious administration of a full dose of castor-oil, given, also contrary to my approbation, by another eminent physician-accoucheur, who was called in on the second day of treatment, and on the fifth from the delivery, when all the acute symptoms had been subdued, and the case was progressing favourably; the action of the purgative revived the mischief, and she died on the ninth day.

The third was a woman in most impoverished circumstances, who was suffering under great deprivations, who was seized with labour at the seventh month of gestation; she was evidently suffering from peritonitis when labour began, and was convulsed in labour; she died on the fifth day.

The last was a similar case of six months' gestation, where there was a placenta presentation, requiring turning, which, from the urgency of the hemorrhage, was effected hastily, and was followed by peritonitis, and she died. This woman was not bled.

Now, how do free, sudden abstraction of blood, the administration of opium in large doses, and the application of extensive counter-irritants on the skin, affect such deranged phenomena as are present at the onset of puerperal peritonitis, such as I have described, indicating such universal depression of the nervous system, and almost paralysed condition of the circulating? By the mere sudden, temporary, but universal, relaxation produced on the ordinarily normally distended condition of the blood-vessels generally, acting mechanically and specially in relieving the congested or distended condition of the particular vessels of the part affected, the condition varying in degree according to the nature of the structure affected, found in every part suffering under inflammation before disorganization has actually commenced, and becomes more or less destructive in its consequences; according, also, to the peculiarities of the structure. It is rapidly so when it occurs in the serous membranes lining the great cavities of the body. And this relief given to the congested vessels by the bleeding is perpetuated by the sedative effects of the opium, assisted by the deriving influence of the artificial erysipelas set up on the whole abdominal skin by the application of the hot-water and turpentine fomentations.

But with the treatment which I have commended I do not deem it necessary to starve the patient, whose powers I sustain with light, nutritious food, as beef-tea, milk, and farinaceous food, and, perhaps, even with wine, in moderate quantities. Yet in no instance did I ever give wine or other stimulant until many hours after all the acute symptoms, of which, I esteem the acute pain as the chief, had subsided.

Those who universally condemn depletion by bleeding, do it under the conviction that, as the system is thereby deprived of so much of its necessary pabulum of life, it ought never to be wasted; but retained, to sustain it, and the destructive tendency of disease; and, also, because they deny that, by bleeding, the active disease is ever suspended. From these opinions I differ. Moreover, nature in her own operations shows us to what extent loss of blood may be borne, not only with impunity, but with advantage, as in extensive epistaxis when apoplexy is threatened; in hæmatemesis where gastritis exists,

or in hæmacatharsis during an attack of enteritis, as well as by the rapid recoveries often made by women after deliveries, in which they had suffered immense losses of blood.

The twenty-three cases of recovery, here alluded to, out of twenty-seven cases treated, are proofs of the safety of the practice of bleeding when adopted to a moderate extent, not one of which suffered afterwards, as from an anæmic state, or had her recovery retarded thereby. A near relative was one of the subjects of this treatment. She was bled twice within twelve hours; first to sixteen ounces, and secondly to six ounces; she recovered well, and within sixteen years of the occurrence was afterwards delivered of eight living, healthy children, and she is now a healthy woman of fifty-nine years of age.—*Obstetrical Transactions*, Vol. IV., p. 96.

109.—ON THE STATE OF THE INTERNAL SURFACE OF THE UTERUS AFTER DELIVERY.

By Dr. J. MATTHEWS DUNCAN, Honorary Fellow of the Obstetrical Society of London.

[The old doctrine, so connected with the name of Cruveilhier is, it is almost needless to say, that the body of the uterus is everywhere laid bare after delivery or miscarriage.]

The very few remarks I wish to make may be conveniently arranged according to the topics; first, regarding the internal surface of the body of the uterus, exclusive of the placental site; second, the placental site; and third, the reproduction of uterine mucous membrane after delivery or during pregnancy. The condition of the internal surface of the cervical portion of the uterus may be left entirely out of this note, for no great difference of opinion has ever existed regarding it.

1. *The internal surface of the body of the uterus, exclusive of the placental site.*

I have elsewhere taken pains to show that the modern errors regarding the condition of this part, as taught by Cruveilhier, and others, are departures from the older and truer teaching of the great William Hunter. I have shown that the anatomy of the decidua truly given and carefully described by William Hunter was supplanted by a jumble of errors introduced into science by his brother John. In like manner, William Hunter's views as to the condition of the mucous membranes of the uterus after delivery have been lost sight of, and it only remains for us now to restore them to their proper place. On this subject he says, in his "Anatomical Description of the Human Gravid Uterus," "This membrane (the decidua) is an efflorescence of the internal coat of the uterus itself, and is, therefore, shed as often as a woman bears a child or suffers a miscarriage. It is of considerable thickness, *and one stratum of it is always left upon the uterus after delivery*, most of which dissolves and comes away with the lochia."

My own observations support the conclusion of William Hunter, and appear to me further to justify the statement that at no time during pregnancy or after it is the decidua thrown off in mass or the muscular tissue denuded. In the course of pregnancy, as the superficial layers of the decidua gradually become obsolete and caducous, new growth of mucous membrane takes place beneath the old; and at whatever time miscarriage may take place, the separated decidua leaves always a layer covering the internal surface of the uterus.

The observations of the late Dr. Chisholm, of Virchow, of Priestley, and of M. Robin, confute the unphilosophical views of Cruveilhier and his followers, and support those just referred to as having been long ago published by William Hunter, but subsequently forgotten.

A thesis of M. Colin is mentioned by Priestley, and cited by Robin, as enunciating views identical with those supported in this note, but I have not been fortunate enough to see it.

2. *The placental site.*

It is natural to suppose that this part of the interior of the uterus will, more than any other, be completely denuded of mucous structures; for here we have, not merely the supposed throwing off of old decidua membrane, but the separation of the highly vascular placenta, suddenly and in the midst of its functions, leaving a bleeding surface behind. I have been represented as holding that the persistence of a layer of mucous membrane at this part was less probable than its persistence over the rest of the uterine surface. Now, in my original paper on this subject, published in October, 1853, I assert that after delivery the persistent layer of mucous membrane "is found, as in early pregnancy, to be thicker at the site of the insertion of the placenta than elsewhere." It was, indeed, the examination of this part, and especially the observation of sinuses still opening upon its surface after the thick mucous membrane was easily and plainly seen, that first strongly attracted my attention to the subject; for this observation made it plain that the old theory of Cruveilhier, and, I may now add, the young theory of Heschl, were fundamentally erroneous, their view being that a new mucous membrane was developed over the denuded uterine surfaces, and, therefore, covering up the sinuses, the demonstration of whose open condition made the view untenable.

Since my first investigations I have had opportunities of carefully examining the uterine surface at the placental site after natural labour and in a suicide near the full time, in whom I artificially separated the organ with a view to this question. In some of these studies I had the valued assistance of the late Mr. Barlow, of this town, who, by microscopic examinations, made out the existence of structures such as have more recently been fully described by Priestley, and especially by Robin. This last observer has now arrived at the same conclusions as I had previously announced. In his elaborate paper, published in the "Memoirs of the Imperial Academy of Medicine," he says that of the utero-placental area of the mucous membrane of the uterus, there is only a small, superficial portion caducous, the greater part remaining permanently adherent to the uterus, and that this persisting portion has a thickness increasing in proportion to the contraction of the muscular layer of the organ.

3. *The reproduction of uterine mucous membrane after delivery or during pregnancy.*

M. Robin and Dr. Priestley believe that, in the course of pregnancy, after its fourth month has passed, the whole mucous membrane of the uterus; or the whole decidua, with the exception of the serotina, is thrown off from the subjacent muscular layer, being displaced by a new mucous lamina which at that time springs up beneath the old decidua. Up till 1858 Robin believed that a somewhat similar series of changes occurred after delivery at the site of the serotina or old site of the placenta, but now he holds that the layer of serotina persisting after delivery is, in no sense, caducous, and continues attached to the muscular uterine wall.

The part of M. Robin's views last described, as only recently adopted by him, coincides with what I have ever maintained. From all the other opinions of Robin and Priestley on this point I dissent. Their published observations do not seem to me to afford any good grounds for their statements. Every one admits that a great amount of effete decidua structures is observed outside the chorion in advanced pregnancy, and it is only natural to suppose that, as superficial layers are shed or exfoliated, new structures are springing up to replace them. In this way it may be quite true that the old decidua is removed and a new mucous membrane appears. But in this sense the same may be asserted of the muscular layer of the uterus after delivery; the old has disappeared by absorption, and new muscular structures have replaced it; yet, after all, it is the same muscular layer. This is not the meaning of M. Robin and Dr. Priestley. They adhere to the old and, I believe, erroneous notion, that the whole uterine mucous membrane of early pregnancy is deciduous or caducous, and is replaced by an entirely new membrane, the peculiar difference of their opinion from the older notions being this, namely, that while, according to the latter, it was at delivery that the decidua was torn off or thrown off, leaving the muscular structure denuded,

according to the former it is about the middle of pregnancy that the decidua is separated and a new mucous membrane begins to be regenerated. This implies that at some time the muscular layer is laid bare, and produces on its surface a mucous tissue heterologous to it. On theoretical grounds this view appears to be untenable, and my observations in cases of miscarriage lend no support to it.

Dr. PRIESTLEY said that he would not long occupy the time of the Society, but as Dr. Matthews Duncan had made frequent reference to his published observations, he craved permission to say a few words. The chief questions at issue were, 1st, What is the condition of the interior of the uterus after delivery? and 2nd, By what process does the interior of the uterus regain the condition of the unimpregnated organ? In reference to the first point, Dr. Priestley had no hesitation in expressing his conviction that the sagacious opinion of William Hunter, so ably discussed and confirmed by the researches of Dr. Duncan, was the correct one. The plane of muscular fibres lying next the cavity of the uterus was not denuded in the way described by M. Cruveilhier, and the interior of the uterus was only so far analogous to a stump after amputation, that large divided vessels were found open at the placental spot. In reference to the second point, he differed from Dr. Duncan so far that he believed the chief portion of the laminae lying next the uterine cavity after delivery not to be composed of regularly formed epithelial particles, such as form mucous membranes generally, but to consist of irregular cells, fibro-cellular structures, and fat granules, identical with those found in the decidua in the latter periods of pregnancy. Shreds of these laminae floated out when the preparation was placed in water, and they were gradually shed off as lochia during the patient's convalescence. Beneath these, however, the microscopic observer found small and regular epithelial particles, not mature at the time of delivery, but embryonic in character, and probably the progeny of the original mucous membrane. The epithelial cells forming the mucous membrane of the uterus at the time of conception were, no doubt, transformed into the fibro-cellular structures of the decidua, and hence the reproduction from the basement membrane, during the latter half of pregnancy, of those cell-particles which were intended to replace the original mucous membrane.—*Obstetrical Transactions*, Vol. IV., p. 107.

110.—A NEW METHOD OF EXTIRPATING LARGE POLYPI.

PROFESSOR SIMON, of Rostock, suggests a method of overcoming the difficulty of extirpating very large fibrous uterine polypi when fixed in the pelvis so that neither by finger nor instrument is it possible to reach the pedicle. The necessary condition, he says, of the excision of such tumours, is the diminution of their circumference, for it is only thus that room can be gained to reach the stalk. His method consists in making a transverse incision of the body of the polypus, especially of the unyielding part of the capsule, until the tumour, by means of traction exerted on its axis or point, is drawn out longitudinally, and so thinned that it becomes easy by finger and instruments to reach the stalk. This lengthening of a polypus is effected at the expense of its thickness, and is brought about through that property of the fibres of fibrous polypi by which they are enabled to separate from each other in large bundles as soon as the unyielding investment (the hypertrophied mucous membrane, especially the hypertrophied sub-mucous cellular tissue of the uterus) is divided to a considerable extent. In performing the operation, the point of the polypus is seized by the vulsellum, drawn down, and then free and deep transverse cuts are made in the body of the tumour by a pair of long and sharp-pointed Cooper's scissors. By these incisions the capsule and the subjacent adherent fibrous layers are divided. Generally upon this, the body of the polypus may be easily drawn out and thinned. The Professor relates three cases in which he has resorted to this proceeding with advantage.—*London Medical Journal*, May, 1863, p. 611.

III.—CASE OF POLYCYSTIC DISEASE OF THE RIGHT OVARY; WITH ULCERATION THROUGH THE WALLS OF THE BLAD- DER.

Under the care of HENRY SMITH, Esq., at King's College Hospital.

[The patient was thirty-eight, married, and the mother of five children. She stated that she first noticed a lump in her groin five years ago. This increased gradually, until ten months ago, when an opening was made into the tumour by a surgeon, about an inch above the navel, and a quantity of green matter came away. Subsequently, another puncture was made lower down, and this was followed by a permanent opening. On admission, there was found a hard, well-defined mass, of considerable size, occupying the centre and right side of the abdomen. The opening discharged a fluid composed partly of ordinary ovarian fluid and pus. There seemed to be a line of demarcation on the right side between two portions of the tumour. The general condition was very bad. She was wretchedly thin and emaciated, and suffered continual pain in the abdomen. The tumour was diagnosed to be ovarian, probably polycystic, and of a semi-solid character. Her health was considerably improved by rest in the house and abundant nourishment, before any operative procedure was attempted.]

At two p. m., on June 27th, the patient was brought into the theatre, the rectum and bladder having previously been thoroughly emptied by an enema and the use of the catheter, and the operation was performed by Mr. Henry Smith in the following way:—An incision was made about an inch above the umbilicus, carried down to its left and then into the mesial line to the extent of four inches. After the peritoneum had been slit up the tumour was partly exposed, but it was covered for three-fourths of its surface by, and adherent to, the omentum. This with some difficulty was separated by the fingers, and the upper and lateral surfaces of the mass were then fairly exposed. A large trocar was now thrust into it, but nothing came away, and on removing the instrument its extremity was found to contain some thick gelatinous fluid. It being evident, therefore, that the bulk of the mass could not be lessened, Mr. Smith, at the suggestion of Mr. Fergusson, lengthened the incision in the abdomen, and was able to get his hands behind the tumour, when it was found to be adherent on all parts to the intestines and mesentery. At this stage it looked as though the proceeding must be abandoned, but by the cautious use of the knife here and there, and by steady manipulation, the adhesions were entirely and safely broken down; the pedicle, which was not broad, was then found, the clamp was readily applied, and the tumour was removed. Only two ligatures were required for bleeding vessels, and the patient was placed in bed in very fair condition considering the prolonged and formidable operation which she had undergone. The tumour when removed was about the size of an adult head, and was composed of several cysts, both large and small: in the latter was the ordinary thin serous fluid, but the contents of the former consisted of a thick gelatinous fluid, which would not flow out when an incision was made; so that, practically speaking, the tumour was solid.

28th. Ten a. m.: The patient has had but little shock after the operation, although she has vomited a great deal. She has dozed much during the night. A suppository of opium and hyoscyamus was administered soon after the operation, and at night she was ordered opium and creasote, and to take ice freely. As the sickness still persists when she takes any thing, Mr. Smith ordered the discontinuance of all nourishment by the mouth, and instead, an enema of beef-tea and brandy every two hours.—Ten p. m.: There has been a free oozing of blood during the day by the side of the pedicle; the belly has become tumid and very painful, especially on the right side; pulse 140. Continue creasote and opium pills.

29th. Sickness has quite subsided, and she is able to take beef-tea; oozing of blood and pain have diminished; bowels open; countenance cheerful. She has taken six ounces of wine, and some egg flip. Repeat opium pill.

30th. Passed a comfortable night. Pulse 128; less pain in abdomen; tongue clean; countenance cheerful. Continue the same.

July 1st. She was not so well last evening, felt lower, and inclined to vomit; she therefore had an injection of beef-tea, and took three grains of opium during the night. She is better this morning, but the pulse is 140, and the tongue dry. Dressings removed to-day; wound looking well, and healing. Still some oozing from the side of the clamp. As the bowels have not been open for forty-eight hours, she is to have an enema of gruel and castor oil.

2nd. She has been suffering much pain since the injection, which caused free purging. There is more swelling of the belly, with pain, and a wiriness about the pulse; tongue slightly red. To have the citrate-of-ammonia mixture, with five minims each of tincture of opium and chloric ether, every four hours.

3rd. She is better. There is much less pain and distension; pulse less wiry; wound discharging freely. She is taking wine and beef-tea. Clamp removed.

4th. The patient has passed no urine during the last twenty-four hours, and there is a decidedly urinous smell about the discharge from the wound, which is thin and copious. On introducing a catheter, only an ounce of urine was drawn off; the instrument was therefore tied in the bladder, and the patient ordered to be turned on her side.

5th. Still a great deal of urinous discharge from the wound. The abdomen, however, is much less swollen and painful. Patient takes nourishment well.

6th. It is quite evident that there must be an opening in the bladder, as the catheter became blocked last evening, and then there was a profuse clear discharge of urine through the wound. Since the catheter has been cleaned and replaced, there has been an abundant flow through it of limpid urine, and much less through the wound.

After this diagnosis had been made, there was little or no hope for her recovery entertained, although for a day or two this woman rallied wonderfully. The abdomen became flat and painless, the wound put on a healthy granulating appearance, and the discharge was more healthy and more decidedly purulent; but the pulse continued very rapid, and she got a severe attack of aphtha, and about a week before death an abscess appeared on the back of each wrist. She, nevertheless, took nourishment well, and lingered on until the 17th, when she died.

Post-mortem examination.—The wound was partially healed for three-fourths of its extent. On laying the cavity of the abdomen fairly open, the bladder was found to have a large ulcerated opening at its superior and posterior part, large enough to admit two fingers. The intestines immediately around the site of the tumour were matted together, and at other parts slightly adherent. The left ovary was found to be the seat of disease similar to that in the one removed, and was the size of the fist. The right ureter was dilated, but sound. Scarcely a trace of the pedicle of the removed tumour could be noticed. Deposits of pus were found between the two layers of peritoneum over the intestines. There were also deposits in the extensor tendons of either wrist. Both the pleuræ and pericardium were roughened with lymph.

In some remarks which Mr. Henry Smith made after the operation, he stated that it was undertaken solely as a matter of necessity, as it was quite clear that the patient must die sooner or later after spending a short interval in pain and misery. With regard to the operation itself, those present had been able to see what formidable difficulties he had to contend with. Nevertheless, it had been satisfactorily concluded. It was true that, having considered the matter fully, he had prepared himself for the possibility of great difficulties in the proceeding. It was the opinion of some of his colleagues that considerable adhesions would be found to exist, and there was reason to expect this as the patient had suffered such constant pain about the tumour, and there had been a continual irritating discharge, which would be liable to set up inflammation and subsequent adhesions. It was well known, however, that an extreme degree of adhesion, especially between the tumour and the abdominal wall, did not contra-indicate the operation, nor render it more fatal.

In this case there was much less adhesion to the abdominal wall than he expected; but unfortunately the tumour was adherent to much more important parts, viz., the omentum and intestines, and indeed it was necessary to use the utmost caution to prevent injury to the latter.—*Lancet*, August 15, 1863, p. 188.

112.—ON A CASE OF RETAINED MENSES OF TWO YEARS' DURATION, CAUSED BY ATRESIA VAGINÆ; PUNCTURE OF THE UTERUS BY THE RECTUM; RECOVERY.

By I. BAKER BROWN, Esq., Senior Surgeon to the London Surgical Home.

In cases of deficiency or total absence of the vagina in the young female, if not associated with any arrest of development of the uterine organs, it is probable that pain and other symptoms of a desire to menstruate may recur monthly, and yet pass off without any great inconvenience. There is the liability, however, of the accumulation of the menstrual fluid, which goes on augmenting at each period, undergoing inspissation, and ultimately giving rise to painful and continued distension of the uterus, which at last demands surgical interference. Such cases are undoubtedly rare, and where attempts have been made to afford relief by puncture or otherwise, in the majority an untoward result has taken place. An exceptional case is related by Dr. Meigs, in his work on "Woman: her Diseases and Remedies." (Philadelphia, 1859.) In this instance there was an absence of the vagina in a girl of sixteen, who had the usual symptoms of menstruation every month, attended with much suffering. The vagina was one inch long, and ended in a *cul de sac*. A hard and solid tumour could be felt jutting upwards in the lower part of the belly like the womb of a woman at quickening. This tumour could be felt also in the rectum; and believing at first that it arose from distension of the womb by the retained menses, an attempt was made to push a small trocar and canula through the rectum quite into the centre of the organ; a few drops of blood only came away. No bad effects ensued, and Dr. Meigs was uncertain as to the true nature of the tumour; at any rate the girl continued in good health, but subject to periodical pains as before, although the uterus did not further increase in size.

On reading Dr. Meigs' description of his case, I cannot help thinking that the tumour was a distended uterus, and that had he used a larger trocar and canula, the result might have been more positive.

In the "North American Médico-Chirurgical Review" for July, 1861, is an instance of "occlusion of the uterus," quoted from the "St. Louis Medical and Surgical Journal" of the previous January, wherein the patient had suffered for two months considerable anguish, without menstruation, though with no other sign of pregnancy. By the finger in the rectum a tumour could be felt; a vaginal examination revealed a shortened vagina. Next day, detecting fluctuation in the tumour, Dr. M. M. Pallen, of St. Louis, introduced a curved trocar into the rectum, and plunged it through the supposed os uteri, and a quart or more of menstrual fluid gushed out, relieving the patient. It is not stated whether this was followed by any bad consequence; if it had been, I have no doubt it would have been mentioned.

A third instance is published in the "Medical Times" of August 17th, 1861, of a girl, aged eighteen, with congenital deficiency of the vagina, admitted into Guy's Hospital under the care of Dr. Hicks. Puncture of the rectum was effectual, and the patient recovered excellently.

Cases of retention of the menses with congenital absence of the vagina must be extremely rare, as so few indeed are placed upon record. The general opinion prevails that a fatal result almost invariably ensues in such cases when the uterus is punctured through the rectum. Whether this is correct or not, the results of experience can alone decide. Dupuytren has opened the closed womb through the vagina in several cases, and the inflammatory symptoms were so severe after the operation that he finally decided upon entirely giving it up, "and rather to allow the patient to die more

quietly and slowly than to speedily hasten her death by the operation, which," he states, "always results from inflammation of the womb, and which is the more violent in proportion to its distension." Since his time the distended womb has been punctured on many occasions through the vagina without the terrible effects witnessed by him.

In 1860 I published a case in the "Lancet" (vol. i., 1860, p. 465) of retained menses in a girl, aged sixteen, the result of imperforate os uteri. She had never menstruated, but every month she suffered great pain in the belly and back, lasting for a period varying from a few hours to a few days. The vagina ended in a *cul de sac*, but the lips of the os uteri could be obscurely made out, covered, as it were, by the lining membrane of the vagina. An enlarged fluctuating uterus could be felt through the rectum. I punctured the membrane through the vagina, and nearly a pint of treacly fluid flowed out. An untoward result occurred on the third day, from local peritonitis.

Dr. Simpson, of Edinburgh, has operated for retained menses in a case of occlusion of the vagina, the result of adhesion and contraction from sloughing, following a previous difficult labour. A large quantity of fluid was evacuated, and a small amount of irritative fever followed this simple operation of puncture ("Obstetrical Memoirs," vol. i., p. 292.)

Several cases have been collected by Dr. Ramsbotham in which this same fever ended fatally ("Medical Gazette," Oct. 16, p. 327).

In none of these, however, had the operation been required by the rectum; in the following case the operation was followed by pain off and on for a few days, the result more of slow contraction of the uterus than of any other cause. And to some extent pain was due to the efforts at natural menstruation, which ended in the appearance of healthy catamenia on the evening of the fourth day of the operation and during the fifth day. Pain also preceded the second menstruation for some days. There was no irritative fever throughout, and the general result I look upon as extremely satisfactory.

Case (reported from the Case-book).—M. D., aged fifteen, single, admitted into the London Surgical Home, November 13th, 1861, from Yorkshire.

History.—Has always enjoyed good health until about two years ago, when she began to suffer much pain at every monthly period unaccompanied by any show of menses. She was treated medically for it, but was not examined till a year ago, when Dr. Wright, of Malton, examined her, and described the nature of her complaint, but did nothing for her. She has been under the care of Mr. Teale, of Leeds, who tried to make a vagina, but failed in consequence of the excessively small amount of tissue to work upon. Ever since she has been suffering constant pain from the distended uterus, which has increased much in size.

On admission.—She is a fine, stout, well-developed girl, but with an expression of great suffering in her face; the uterus can be felt externally as large as a four months' gravid organ, and on introducing the finger into the rectum it can be felt bulging and prominent, and something like an os can be distinguished. There are no signs of a vagina, but all the other external parts are perfect.

November 21st. In the presence of M. Nelaton, from Paris, Dr. Esteva, his assistant, Dr. Gueneau de Mussey, and several other medical gentlemen, Mr. Brown tapped the uterus through the rectum with a curved trocar and canula, which he introduced as nearly as possible where he thought he could feel the os. About an ounce of treacle-like fluid came away immediately; the canula was left in.

Ten p. m. There has been a good deal of pain, for which one grain of opium was ordered. A quantity of the thick menstrual fluid has come away.

[The case progressed favourably, the menstrual discharge coming on profusely on the 23rd, 24th, and 25th November. On the 4th December, a fortnight after the operation, the canula was removed.]

25th. Mr. Brown examined the rectum with the speculum, but could observe nothing beyond a slight depression, through which, however, he

could not introduce any probe or instrument into the uterus. He determined to wait and see, in the event of the uterus becoming enlarged and distended, whether there would be an outlet formed for the menses.

From December 25th to January 2d she suffered a good deal of pain every day, lasting for some hours, generally in the middle of the day, and unrelieved by any treatment.

January 2d, a. m. There appeared a thick muco-gelatinous discharge from the rectum, coloured with blood, no doubt the menstrual fluid; since this appeared she has had no more pain.

3rd. Very comfortable; there is still a little discharge.

4th. There is neither pain nor discharge.

10th. She left the Home quite well and in a wonderfully improved state of health—*Obstetrical Transactions, Vol. IV., p. 21.*

113.—ON OVARIOTOMY: THE MODE OF ITS PERFORMANCE, AND THE RESULTS OBTAINED AT THE LONDON SURGICAL HOME.

By I. BAKER BROWN, Esq., Senior Surgeon to the London Surgical Home.

[The operation of ovariectomy is now daily becoming a recognised proceeding in surgical practice. Experience more and more clearly demonstrates that the operation is not only justifiable and proper, in suitable and properly selected cases, but shows that its mortality is even much less than that accruing from any other capital operations in surgery. Some most valuable statistics of the results of ovariectomy have been collected by Dr. Clay, of Birmingham, in his translation of Kiwisch's "Lectures on the Diseases of the Ovaries." Speaking generally, it would seem as if the recoveries are now two to one, or that the deaths are about 33 per cent.]

Conditions rendering the operation justifiable.—In determining upon the performance of ovariectomy, the surgeon must be satisfied by careful and repeated examination that the tumour is ovarian, and, if possible, that it is not cancerous. The latter is at times not only extremely difficult, but impracticable; the diagnosis will be assisted, however, by the history and aspect of the patient, and the rapidity or slowness of the growth of the tumour, together with the presence or absence of cancer in other parts of the body or in the patient's family.

Heretofore, the existence of adhesions was considered as a reason for abandoning the operation of extirpation. At the present time surgeons rarely find an obstacle to the completion of the operation in the adhesions about the ovarian sac, but either break through them with the *écraseur* or the hand, or divide them by a knife or scissors after tying them; if found vascular. Yet it must be admitted that they may be so strong, so extensive, and so placed, that it is advisable not to run the risk of attempting the removal of the whole tumour, and some other mode of treatment might be resorted to with advantage, as I have elsewhere described in my work on the "Surgical Diseases of Women." If it is necessary to secure any of these adhesions by ligatures, I would suggest that they should be silver wire instead of thread or twine, and the ligatures allowed to remain within the abdominal cavity, simply cutting them off short and close. This, I think, is a very material improvement in the operation.

Mode of performing Ovariectomy.—Different methods have been selected by various operators for performing this operation, both in regard to the position of the patient and the manner of making the incisions. My own plan, which has been fully described in my work already alluded to, is as follows:

The patient being placed conveniently on her back, and brought under the influence of chloroform, an exploratory incision, from two to three inches in length, should first be made in the *linea alba*. Having divided the peritoneum and reached the cyst, two or more fingers should be passed over its surface, to ascertain if adhesions exist. If these are slight and recent, they should,

if possible, be broken down by the fingers; or if they are larger and stronger, they may be divided by the *éraseur*; or if vascular, after being ligatured by silver wire, may be cut through by the knife or scissors. However, cases now and then occur in which adhesions are so firm and vascular, and so extended or so peculiarly situated, that it is not prudent to endeavour to detach the cyst, and then we must desist from the operation of extirpation, and substitute for it one of those other plans of treatment considered in my work—such, for example, as the excision of a portion of the cyst, if, that is to say, it is not deemed more expedient to desist from any further surgical proceeding.

The presence of adhesions and the necessity of dividing them involve an enlargement of the primary incision, a measure otherwise, indeed, necessary to the further carrying out of the operation. An incision of four inches may suffice, but a longer one is often necessary, and on the matter of the length of incision the operator must be guided mainly by his own judgment of what is necessary to enable him to detach and remove the mass with the greater facility.

The next step is to tap the cyst or cysts with a proper trocar and canula, and in the evacuation of the fluid to take care that none of it escapes into the cavity of the abdomen. Then, if there is only one cyst, and that not thick nor vascular, a portion of it only may be excised. If the cyst, however, should be found to be thick or vascular or multilocular, it will be the safest proceeding to have recourse to complete extirpation, in the following manner: The pedicle of the tumour is to be taken in the left hand and gently drawn outwards from the pelvic cavity, an assistant carefully keeping back by warm flannels the bowels and omentum. A clamp—the best, I believe, being the carpenter's callipers—is now applied around the pedicle. This should be passed as near to the tumour as possible, so that, by the entire length of the pedicle being preserved, the fastened end may be kept external to the abdominal cavity. This done, the tumour should be removed by dividing the pedicle half an inch from the clamp, which should be given to an assistant and held at the inferior end of the opening. The operator then closes the wound, and this, I need hardly say, should be done as in all operations exposing the peritoneum, as soon as possible, by introducing silver sutures about an inch from the incised edges, and about half an inch apart, through the parietes of the abdomen. This step is best done by passing a tenaculum needle through both sides of the wound and then threading the eye with the wire, and on withdrawing the needle bringing it through and twisting it. In this mode of closing the wound no secondary sutures are required.

The advantages of the clamp are that it can be removed in from one to three days, the wound heals more quickly, and the patient may get convalescent in two or three weeks, whereas when ligatures are applied they take, at the very least, nine or ten days, and now and then as many weeks to come away; and, indeed, an operator has published his cases as successful, the subjects of them having returned to the country many weeks after with the ligatures hanging from the opening; whilst they remain, the patient cannot be considered completely cured.

I used formerly to think that when the pedicle was very short it was better to apply the ligature than the clamp. But now I always use the clamp, taking care, when the pedicle is very short and the drawing gives pain to the patient, to remove the clamp in a few hours.

I have not enjoined the use of any particular length of incision, for this matter must, I am of opinion, be regulated by the special circumstances of each case, the rule on the surgeon's part being to extract the cyst with the least danger to the patient, and through the smallest practicable incision without incurring a risk of failure in the operation. A small incision of an exploratory nature, should be the first; if the operation be proceeded with, it must be enlarged sufficiently to admit the extraction of the apparent cyst, and further increase will be very easy if its peculiarly compound nature, its position or relations, or other circumstances, demand it.

It is desirable, when the diseased ovarian mass of one side is removed, and before the abdominal incision is closed, to look at the condition of the other ovary, which not uncommonly is also diseased, and when such is the case, may be at once removed. An instance of this sort is described by Dr. Peaslee, in the "American Journal of Medical Sciences" for April, 1851, in which a cyst, the size of a pullet's egg, was discovered on the right ovary, and the whole organ was diseased. The second tumour was removed. Two somewhat similar cases occurred to myself, wherein I removed both ovarian tumours; one of them is included in the series which accompanies this paper.

There is one plan lately introduced for placing the patient undergoing the operation, which I cannot but think that extended experience will induce the originator either to change or to modify, namely, placing the patient in an arm-chair during the performance of it. The objections to this are clearly so obvious that it is unnecessary that I should dwell upon them.

In the operation great care should be used not to employ a sponge within the cavity of the abdomen; in fact, it is even better to leave that which cannot be removed with the hand or a piece of flannel, than to irritate the peritoneum with a sponge.

Preparations for the Operation.—Previous to performing ovariectomy, there are certain preliminary or preparatory measures which deserve to be mentioned, from their importance as bearing on the subsequent results. These are the use of warm baths, repeated on several occasions, to cleanse and soften the skin, and thereby ensure free perspiration after the operation. To these may be conjoined suitable remedial measures of a tonic character, such as steel and arnica. A healthy condition of the skin and of the blood is highly necessary towards recovery afterwards. The bowels should be opened on the morning of the operation. A flannel waistcoat and a pair of flannel drawers should be got ready to wear; the former should be put on before the operation. A hot-water bottle should be prepared for the feet. There should be a thermometer in the room, and the temperature should not be kept lower than 66° nor higher than 70°. A kettle should be kept boiling on the fire, so as to ensure a degree of moisture in the air, so especially requisite when the wind is in the east or the weather hot and dry. The meteorological conditions of the atmosphere should be observed and attended to before the operation, for a low and heavy atmosphere, with an absence or deficiency of ozone, and that condition generally which we describe as depressing, is exceedingly dangerous. Not only does this observation apply to ovariectomy, but to all other serious operations. If a greater regard were paid to atmospheric changes, we might expect much less of gangrene, pyæmia, low fever, and other unfavourable conditions which often arise after operations.

If the operation takes place on the bed which the patient is to occupy afterwards, the lower part should be covered by a mackintosh sheet and an old blanket. There should be a hassock or stool for the feet to rest upon. Warm stockings should encase the feet and legs, and the hands and arms enveloped in a flannel gown. No food should be taken for some hours before the administration of the chloroform, and a supply of ice should be procured for the patient to suck for two or three hours before the operation, to avoid sickness afterwards—this is of some consequence. There should be plenty of hot water in the room, in which in cold weather both the operator and his assistants should immerse their hands before touching the patient; and there should be from three to six basins of warm water ready for immersing sponges, or warming the flannels, &c. The duties of each assistant should be clearly assigned and understood before entering the room. Long needles, like those used in operating for ruptured perineum, should be at hand, with metallic sutures. Several smaller ligatures for blood-vessels should also be ready, and a many-tailed flannel bandage, to go round the abdomen after the operation is completed; also a supply of lint, towels, and a few adhesive straps.

One or two scalpels, a director, a pair of scissors, a pair of vulsellum forceps, a pair of good common forceps, tenaculum, trocar, and canula of large size, together with the needles and ligature, and not less than two clamps, should be ready on a tray; and lastly, as much will depend upon the after-

treatment, the operator, or some competent surgeon or an experienced nurse, should remain with the patient all night. Indeed, the patient should not be left for more than two hours at a time for the first three or four days.

After Treatment.—After the recovery from the effects of the chloroform, it will not be necessary to administer opium unless much pain is present; and then either one or two grains are to be given by the mouth. If there is any tendency to sickness, it should be given by the rectum. If the pain should still continue, even after taking the opium, and the patient be troubled with flatulency, fomentations must be applied over the abdomen by means of flannels steeped in hot water and freely sprinkled with turpentine. At the same time a cloth with turpentine sprinkled upon it is placed on the bed-clothes, near the mouth, so that its vapour may be freely inhaled. For the first twenty-four or forty-eight hours nothing is given in the way of food, excepting barley-water, iced drinks, &c., until the patient begins to crave for something more substantial, when it is gradually allowed. On the third day, in many of the cases, the patients have taken a mutton chop and a glass of beer.

Analysis of the Cases.—Since the opening of the London Surgical Home, up to the present time, March, 1862, ovariectomy has been performed nineteen times by myself. Of that number thirteen have recovered and six have died. The details and special particulars of the whole of these are given in the accompanying tables, which shall now be analysed.

Age.—The ages of the patients varied from 18 to 56; of the successful cases there were one of 18, two of 19, one of 20, one of 21, one of 23, one of 25, one of 27, one of 31, one of 46, two of 48, and one of 56. Of the unsuccessful, there were one of 21, one of 30, one of 35, one of 46, one of 50, and one of 55. So that of the successful cases eight were under the age of 30, and five above; whilst of the unsuccessful, one was 21 and five were 30 and upwards. This result agrees somewhat with Dr. Clay's statistics; but it may be stated, without reserve, *ceteris paribus*, that a better chance of success is held out to the female who undergoes the operation before she is 30; this, however, will be influenced by the duration of the disease, the condition of the patient's health, and the nature and extent of the disease, especially as regards the adhesions.

Duration of the Disease.—The duration of the disease in the successful cases was from 4 months to 6 years—six within 1 year, four of 2 years, one of 22 years, one of 4 years, and one of 6, making ten within the 2 years; nine were single and four were married, and of the latter, two only had had children. Five only had undergone tapping from one to three times. In the unsuccessful cases the duration of the disease was from 2 to 10 years; four were married women, three of whom had borne families of from three to six children, and one was confined a year before the operation, although the disease was present for two years. Four of the fatal cases were tapped from one to six times.

State of the Health.—The general health was represented as very good in five of the successful cases. In six it was but middling or indifferent, in one it was much shattered, and in another actually bad. One of these had a sharp attack of peritonitis eight months before the operation, and another had a most miserable and unhealthy looking person. With these drawbacks recoveries ensued. In the unsuccessful cases four had bad or indifferent health, yet two were most anxious to undergo the operation; one was in pretty good health, and another had good health up to six weeks before the operation.

The Operation and character of the Tumour.—With respect to the operation and the character of the tumour which is revealed, the incisions varied from three to seven inches in length; in two only did it extend from the umbilicus to the pubes; in one of these the operation was fatal. In eleven it did not exceed five inches.

The tumours were polycystic or multilocular in eleven, and unilocular or monocystic in two of the successful cases. In one of the former the opposite ovary was converted into a small fibrous tumour. In the unsuccessful cases the tumour was polycystic in four and monocystic in one, and more or less

solid in the sixth, containing hair, steatoma, bone, and many other perfect teeth. The sizes of all these varied, but they were mostly medium and large.

Adhesions.—Adhesions were present in all, excepting four of the successful and one of the unsuccessful cases. In the other successful cases they were comparatively slight and easily broken down, although very numerous and extending in various directions in four; they were very firm and strong in two; in one of these they bound the tumour to the uterus and bladder by a band eight inches wide. In five of the six unsuccessful cases they were extensive; for example, in two they were numerous, in all directions, some of them requiring to be cut; in one of these the whole of the omentum was adherent to the uterus; in a third case they were especially strong and thick, requiring a ligature to one attached to the liver. The very extensive adhesions in the fatal cases had much to do with the result.

Anæsthesia.—It may be here remarked that chloroform was given in all the cases; in two it was discontinued because of the great falling of the pulse in one and the alarming congestion of the face and neck in the other; the patients were partially conscious, but suffered no pain; in two instances it was used during the first part of the operation, and ether for the remainder.

Pedicle.—The pedicle was retained outside of the abdomen in all but two of the cases; the callipers were used to retain it in situation externally, in place of the ligature.

Causes of Death.—It now remains to make a few observations on the causes of death in the unsuccessful cases. Out of the nineteen cases in which ovariectomy was performed there were thirteen recoveries, as has been already stated, and six deaths. On looking carefully into the latter it will be observed that in four the fatal result ensued from causes that cannot be fairly attributed to the operation itself. In the eighth and fourteenth cases the fatal result was mainly the result of the operation. In the eighth case an emaciated patient, aged forty-six, had been tapped six times, the adhesions were most considerable, and bled freely on breaking them down, which was the chief cause of the obstinate vomiting and low peritonitis, which ended fatally in two days. Case 14 presented such extensive and firm adhesions that a recovery was not anticipated at the time of the operation; the tumour extended itself into the pelvis, and was glued to the uterus; death was clearly the result of shock in forty hours.

In the other cases, namely, Nos. 2, 3, 18, and 19, other causes influenced the result. In the second case the patient's general health was for some time previous much broken. She was very urgent to have the tumour removed, and in doing it, it was discovered to be congenital, being chiefly solid, containing loose hair, ten pints of steatomatous fluid, bone, teeth, &c. Death occurred in thirty hours; and besides evidence of recent peritonitis, there were the remains of much old disease, the liver being firmly bound to the diaphragm by old adhesions. In No. 3 the patient had been a hard drinker and had softening of the liver; she had been tapped five times, and was very urgent in her demands for the operation. The abdomen contained forty-five pints of ascitic fluid independently of the contents of the cyst. Death ensued in six days from incessant vomiting of green bile, the result of the diseased state of the liver. Cases 18 and 19 almost speak for themselves, for diarrhoea carried off both, the first in eighteen days and the second in eight days after the operation. In case 18 a large pelvic abscess, which had burst, existed near the rectum, and scirrhus ulceration of the duodenum was observed. In case 19 the patient went on wonderfully well until the diarrhoea set in, the shock of which, acting upon such a diseased heart as was discovered after death, readily brought about a fatal result by choleraic collapse.

Conclusion.—In this communication I have given the particulars of all these nineteen cases, without any reserve. The details are extracted from the note-books of the Home; the operations were all witnessed by various professional gentlemen from various countries, from different parts of Great Britain and the metropolis, many of whom, at the same time, watched the

progress of those that recovered from day to day and week to week; and in now bringing them before the Obstetrical Society of London I do so, in the hope that ovarian disease will continue to obtain that attention from practitioners which the last three or four years has given satisfactory evidence of.

Mr. SPENCER WELLS said that the recommendation of the author of the paper to tie adhesions with silver wire, to divide the adhesions, and then cut off the wire short, leaving a portion of dead tissue strangulated by the wire within the peritoneal cavity, was advice which he should not be disposed to follow. The material of which the ligature was composed could be of little importance. Either wire or twine would equally cause gangrene of the strangulated part, and there would be great danger that the whole system might be poisoned by absorption of the fetid matter of the decomposing slough. He felt convinced that if this practice were followed the mortality after ovariectomy would increase. He preferred a ligature of wire-rope, tightened by a screw, to the calliper clamp; and he thought (after trying both seton-wire and harelip-pins for the closure of the wound) that harelip-pins were generally to be preferred. The lateral pressure made by the cotton twisted round the pins fixed the two wounded surfaces more closely and securely than the wire. He differed entirely from the author in his preference to flannel over sponge in cases where it was necessary to cleanse the peritoneal cavity from blood or ovarian fluid. A soft, clean sponge did the work more effectually, and there was not the danger, as there was with flannel, of leaving portions of fine wool, or *stuff*, adhering to the peritoneum. He also thought that the author's advice would lead to a want of care in the thoroughly cleansing the peritoneal cavity from ovarian fluid. In a recent case he had been led by some such advice, and by what he had heard of the practice of other surgeons, to leave some ovarian fluid in the cavity, thinking that as the intestines were exposed it might be more dangerous to sponge away the fluid than to leave it; but the result had very much disappointed him. There was little else unfavourable about the case, yet the patient died, thirty hours after operation, of acute peritonitis, and the whole membrane was covered by a layer of the albuminous portion of the fluid. The peritoneum seemed to have acted as a dialyser, allowing the water to pass through, and leaving a coating of albumen on its surface.—*Obstetrical Transactions*, Vol. IV., p. 59.

114.—ON A DOUBLE-JOINTED UTERINE PESSARY.

By the Hon. DAVID ELLIOT WILKIE, M. D., Physician to the Melbourne Hospital.

[In the treatment of uterine displacements Dr. Simpson chiefly relies on a metallic frame pessary, which has for the last fifteen years been very generally adopted by the medical profession. This instrument very much resembles that of Dr. Wilkie's; but the uterine and vaginal portions form one piece. This renders it rather difficult to introduce. The first portion of the instrument being introduced, and the uterus replaced, it has to be locked to the second or external portion. To do this it is necessary to bend back the pubic portion of the external framework, to a considerable extent for the purpose of avoiding its being caught and impeded by the anterior part of the pelvis or pubes. After the locking is accomplished, the pubic portion of the instrument is bent and moulded upon the anterior portion of the pelvis, so as to fit as exactly as possible. The disadvantage of this is that the uterus is rendered at once completely solid and fixed, and the constantly varying position of the uterus not allowed for. Dr. Wilkie's pessary is a modification of this pessary of Simpson's.]

The double-jointed pessary is composed of three pieces, the uterine, the vaginal, and the pubic portions. The uterine piece consists of a metallic pessary, with an almond-shaped bulb, and with the orifice of the tube expanded in a trumpet-like form. The vaginal piece is in the form of the capital letter U, with one arm shorter than the other. The long arm fits loosely

into the tube of the pessary, the orifice of which, from its expanding form, is always readily found. The central portion is three inches in length, and occupies the vagina; the short arm fits into the pubic portion of the instrument, which consists of a wire-frame terminating in a canula.

The vaginal and pubic pieces have a trocar and canula joint to secure perfect freedom of motion, and the position of this joint renders the bending and moulding of the pubic portion on the abdomen of the patient altogether unnecessary.

Immediately above the bulb of the pessary there is a small round hole in the tube, into which a piece of hooked wire may be inserted through the bulb, when from any cause there is difficulty in removing the pessary. It sometimes happens, especially in cases in which the uterus is enlarged, that the bulb enters the os, and becomes firmly fixed by muscular contraction.

In such cases, the importance of this appliance is sufficiently obvious. The wire is readily introduced through the orifice of the bulb, and with a little manipulation it is firmly hooked into the pessary. In one instance, I had slightly to incise the os with Professor Simpson's hysterotome, to permit of the removal of the pessary. The patient had no bad symptoms afterwards. In this case the pessary had not been prepared for the application of the wire. It was withdrawn by passing a piece of bent wire over the bulb, and hooking it on to the tube.

For the introduction of this instrument the patient is laid on her left side, the forefinger of the left hand is passed into the vagina, to hold back the fourchette, and to guide the pessary which is introduced on a straight director (as a piece of iron wire) held in the right hand. When the bulb of the pessary reaches the os, the uterus is restored to its proper place by means of the director, and retained in this position for a short time, perhaps one or two minutes. The forefinger of the left hand is now placed at the orifice of the bulb; the director is withdrawn, and the long arm or stem of the vaginal piece is guided into the tube. The patient is then turned on her back, and the pubic portion of the instrument is finally adjusted.

If the wire frame appears too loose on the abdominal walls, it is removed from the instrument, bent sufficiently forwards, and then readjusted. When first applied, the wire frame may appear too tight from the dragging of the uterus, but the following day it will probably be found sufficiently slack from the more perfect restoration of the organ to its proper place.

It is always desirable that the patient should be seen in one or two days after the instrument has been introduced, for the purpose of adjusting the wire frame.

I have alluded to the occasional dilatation of the os uteri, so as to permit of the entrance of the bulb of the pessary. In cases where this may be anticipated, a crescentic bulb, similar to that hereafter described for prolapsus uteri should be used.

A few days ago, I was consulted by a lady from Ballarat, who had weaned her child four months ago, and who had not seen her catamenia since. The os uteri appeared pale and small, and the walls of the uterus were very soft and thin. The sound passed readily for nearly three inches into the hollow of the sacrum, but the uterus could easily be turned in any direction. I applied the double jointed pessary to support the uterus in its normal position, and in the hope of exciting it to healthy contraction. I requested the patient to call in three days, and I was surprised to find the bulb of the pessary within the os. It was very easily removed, however.

Imperfect contraction or subinvolution of the uterus is a frequent cause of uterine displacements, and the result of the application of a pessary in this case shows how necessary it is that those who wear this instrument should occasionally be seen by their medical attendant.

In cases where simple pessaries are required, either to dilate the os uteri, or to restore the catamenia, I now employ the double-jointed pessary. Without external support, simple pessaries are seldom retained for more than two or three days, and they may, very inconveniently, drop out in the street or in the closet. In slipping from the uterus into the vagina, there is also some

danger that they may get lodged in the transverse axis of the pelvis, and thus cause a partial displacement of the uterus.

The double-jointed pessary is so easily applied, and so safely worn, that I can see no special advantage in the use of the simple unsupported pessary in such cases.

When galvanic pessaries are required for the undeveloped uterus, or in cases of amenorrhœa, I now use them with the double-jointed instrument, and of a similar form to the others.

I have two patients, married ladies, with undeveloped uterus, who are now wearing galvanic pessaries in this way.

After incision of the os uteri for contraction or stricture, many different expedients have been adopted to keep the canal permanently open. In about a week after this operation, or when there is no longer any fear of hæmorrhage, I apply for this purpose the double-jointed pessary. The instrument causes no greater inconvenience in consequence of the operation, and if worn for one or two weeks, sufficient dilatation is readily secured.

Prolapsus uteri is simply another form of displacement, and since all these affections are best treated by supporting the uterus in its own proper axis, I have every confidence that the double-jointed pessary will be found to give a well-directed and effectual support in such cases.

For this purpose the common almond-shaped bulb pessary requires to be somewhat modified. As enlargement of the uterus is an ordinary accompaniment of prolapsus, the stem of the pessary should be sufficiently long to reach very nearly to the fundus, and it is necessary that the bulb should have a crescentic form, to support the os uteri without dilating it. This crescentic bulb is similar in width to the almond-shaped bulb, and its length is about two inches. A hollow metallic bulb of this form being difficult to make, a solid bulb of aluminum, or porcelain, may be substituted. It is most readily made of camphor or myrral wood. As in the other bulb pessaries, there should be a small hole in the tube to facilitate its removal. I have less hesitation in recommending this new instrument in cases of prolapsus uteri, since it may safely be said that every instrument or expedient hitherto proposed, has failed to give that direct support in the true axis of the uterus, which is essential for its successful treatment.

A smaller crescentic bulb will be found very useful in all other cases in which the ordinary almond-shaped bulb has a tendency to enter the os uteri. It is no small advantage possessed by this double-jointed instrument, that any kind of pessary may be used with it, the orifice of the tube being formed in a similar manner.

There is one other point which I may be permitted to notice. Those patients who have worn this new instrument have felt so little inconvenience from it, after the first day, that they scarcely knew they were wearing it, either in walking or driving.

Much exercise, however, should always be avoided, as it is apt to excite troublesome hæmorrhage, and may necessitate the removal of the instrument. —*From a paper read before the Medical Society of Victoria, July 1, 1863.*

119.—ON THE USE OF MEDICATED PESSARIES IN THE TREATMENT OF UTERINE DISEASE.

By Dr. T. HAWKES TANNER, Assistant Physician for the Diseases of Women and Children to King's College Hospital, &c.

[The chief reason for the non-employment of medicated pessaries has probably been the difficulty of so making them that they can be efficiently applied by the patient herself. Moreover, very few druggists succeed in making them properly. The use of the butter obtained from the Theobroma Cacao nut, however, obviates this difficulty. It possesses many valuable qualities.]

It has an agreeable smell, and does not soil the fingers when handled; it does not become rancid; while, more particularly, though very firm, it has

the property of becoming fluid at a low temperature. It is sometimes a little too stiff, but this fault is readily obviated by combining with it a little olive oil or glycerine. Pessaries made with cacao butter, though they have the consistence of wax while cold, are dissolved in the course of a few minutes when introduced into the vagina.

If ophthalmic surgeons are much indebted to Mr. White Cooper for directing attention to the uses of this butter, obstetric physicians are under no less an obligation. For although it had been used in America for making ointments for some time before this gentleman wrote of its merits, yet no physicians in this country were acquainted with its value, as far as I can learn from many inquiries.

There are few uterine diseases in which the use of medicated pessaries may not advantageously form a part of the treatment. But they are more especially valuable in acute and chronic inflammation of the cervix uteri; in internal metritis, with exfoliation of the lining membrane of the uterus; in slight prolapsus or procidentia; in cancer; in all varieties of ovaritis; as well as in many affections of the female bladder. By means of them the diseased parts may be kept constantly bathed in such drugs as mercury, iodine, lead, zinc, belladonna, opium, conium, &c. They are not only most efficacious in relieving pain, but they also shield the diseased and irritable surface from contact with the vaginal walls. Owing to this latter property, they are of great utility in healing excoriations about the labia uteri; though, of course, part of the benefit derived from their use in these cases must be attributed to the absorption of the materials composing them. By their employment, moreover, the necessity for frequent examination of the morbid structures is greatly diminished.

The following formulæ are given as examples of the way in which I generally prescribe these remedies. It is only necessary to premise that rather large doses of the different drugs are necessary, inasmuch as absorption through the walls of the vagina is slow and uncertain.

1. *Iodide of Lead and Belladonna Pessaries.*—℞. Plumbi iodidi, ℥ij; extracti belladonnæ, ℥j; butyri cacao, ℥iv.; olei olivæ, ℥j. Misce. Divide into four pessaries, and order one to be introduced into the vagina every night or every other night.

2. *Mercurial Pessaries.*—℞. Unguenti hydrargyri, ℥iv—℥ij; butyri cacao, ℥iv.; olei olivæ, ℥j. Misce. Where there is tenderness of the cervix uteri, one scruple of extract of belladonna or two scruples of extract of conium should be added to the mass. Divide into four pessaries.

3. *Lead and Opium Pessaries.*—℞. Plumbi acetatis, ℥j; extracti opii, gr. xij; butyri cacao, ℥iv.; olei olivæ, ℥j. Misce. Divide into four pessaries. Order one to be used every other night.

4. *Zinc and Belladonna Pessaries.*—℞. Zinci oxydi, ℥j; extracti belladonnæ, gr. xij—℥j; butyri cacao, ℥iv.; olei olivæ, ℥j. Misce. Divide into four pessaries. One to be used every night.

5. *Iodide of Potassium and Conium Pessaries.*—℞. Potassii iodidi, ℥j; extracti conii, ℥iv.; butyri cacao, ℥iv.; glycerini purii, ℥j. Misce. Divide into four pessaries, and direct one to be used every night.

6. *Tannin and Catechu Pessaries.*—℞. Tanninæ, ℥ij; pulveris catechu, ℥j; butyri cacao, ℥iv.; olei olivæ, ℥j. Misce. Divide into four pessaries, and order one to be used every other night.

In some diseases of the uterine cavity, attended with copious muco-purulent discharges or with hemorrhage, the greatest benefit may be obtained from the local use of astringents. Once or twice a week a pessary made of tannin and the cacao butter, about two and a half inches long, and of the size of an ordinary stick of nitrate of silver, may be introduced up the canal of the uterus, and left there. It soon dissolves, and thus coats the whole seat of the discharge with the medicament, the coating remaining attached for many hours. Such a pessary, weighing about thirty-six grains, will usually contain from twelve to twenty grains of tannin. Of course other substances—as alum, sulphate of zinc, dried sulphate of iron, &c.—may be employed in the same manner, if their use be indicated. This plan of treat-

ment has none of the objections which apply to throwing fluids into the cavity of the uterus, a proceeding that is certainly not unattended with danger. There is no necessity, moreover, for dilating the cervix with sponge-tents prior to the introduction of the pessary; inasmuch as, when sanguineous or purulent discharges have long been present, the os and cervical canal will always be found sufficiently patulous to permit of the introduction of these astringent rods.—*Obstetrical Transactions, Vol. IV., p. 205.*

116.—ON THE ACTION OF NITRATE OF SILVER.

By ROBERT ELLIS, Esq., Obstetric Surgeon to the Chelsea and Belgrave Dispensary.

[Erroneous views are entertained by many as to the therapeutic influence and physiological properties of nitrate of silver. For instance, many years ago Mr. Higginbottom, in his excellent treatise on the properties of this substance, denied its escharotic power, and attributed simply astringent and stimulant properties to the salt. Nitrate of silver must, indeed, be defined as a true escharotic, of a low power of penetration.]

Considered in its relation to our uses as obstetrists, it must not be forgotten that the substance is applied to a region of the body, the canal of the cervix uteri, which of all others exposes the largest amount of surface, by reason of the rugose character of the membrane and the large size of the villi which stud its surface. Numerous orifices of excretory glands likewise present additional facilities for the deep penetration of any caustic substance. The application of the lunar caustic to such a structure cannot fail to be attended with the large decomposition of living tissue, since it is penetrated by it on every side, and the result is the production of a true slough or eschar. Provided the stick be held in contact with this surface for a minute or two, the delicate structure of the villi, and that of a superficial portion of the mucous membrane underlying the fine epithelium of this part, cannot fail to be destroyed. In practice, as is well known, this is really the case, and a true slough is thrown off. That this eschar is something more than coagulated mucus the writer has satisfied himself by an examination of it under the microscope.

To the obstetric surgeon it is indeed invaluable. It is essentially characterised by its strict limits of action, a point well made out under the microscope; by its active and yet most manageable properties as a caustic substance; by its powerfully astringent and stimulant qualities, and by the healthy and kindly healing surface which results from its escharotic use. These are properties possessed by few, if any other, of our escharotic substances, and they render this one in a special manner applicable for the treatment of most of the ulcerative diseases of the os uteri. To produce its full effect as an escharotic it is necessary to use it most firmly, and with a certain degree of friction and rotation. By this means it penetrates below the surface, and an eschar of sufficient depth can be readily obtained. But nitrate of silver, in its ordinary form of lunar caustic, is wholly unfit for this kind of service, in consequence of its great brittleness; and the constantly recurring annoyance which has arisen to obstetrists out of this defect has led of late to several attempts at its removal.

Commercially, the nitrate of silver is sold in large, tabular crystals. These contain a certain amount of water of crystallisation, with a very little free nitric acid. When heated to a certain point, the crystals fuse, and the nitrate may be run into moulds; in this manner the ordinary lunar caustic is made. The mould, which is usually made of brass, and electro-plated inside, has a number of cylindrical grooves in it, and thus many sticks are cast in one operation. In order to ensure perfectly white caustic, it is necessary to melt it with care in a silver ladle. It is probably because the fused material is very quickly cooled that it is so extremely brittle, as it is generally found in commerce; and a good way of procuring caustic much less friable than common is to allow the mould very slowly to become cooled.

Many attempts have been made to remedy this defect, with more or less success. Within the last year or two great efforts have been made by the operative chemists to give to their caustic the character of toughness while preserving its purity. The admixture of a certain proportion of chloride of silver—which may be fused into a substance called by the old chemists horn silver—with the nitrate, to a great degree diminishes the brittleness of the latter. But this kind of caustic has the disadvantage of being much less active as an escharotic, and also, owing to the photographic properties of the chloride of silver, it becomes quite black by exposure to the light. Its use was consequently soon discontinued. Another method of communicating a certain degree of toughness to the caustic consists in the addition of a small quantity of the nitrate of lead to the fused mass. The effect of this is certainly sufficiently good to justify the addition, and a tolerably firm pencil is secured thereby. But in this, as in all other instances, the caustic is weakened in exact proportion to the amount of foreign matter introduced. The admixture of a small per-centage of the nitrate of potash (the toughness of which in a fused state is well exemplified in the common sal-prunel ball) is likewise of service in destroying the brittleness of the caustic cylinder, and the varieties of tough caustic now sold by different London chemists will be found to contain one or other of the ingredients named, in addition to the nitrate of silver. The very slow cooling of the fused mass may also be taken advantage of in preparing these specimens of a not-friable caustic. Some of the best makers of this variety of caustic have sent specimens to the author for practical use, and some are now shown to the Society.

The writer has been pressed by the makers of tough caustic to give an opinion as to its value in practice, and he would observe with regret that, without any exception, this caustic fails to answer the expectations that might be formed of it. After the first or second use it is no longer tough, but nearly as friable as common caustic, and the writer has more than once broken off a considerable piece of it high up in the cervical canal. It would appear as if the moisture of the surface to which it is used penetrated its substance and robbed it of the strong cohesive property which it possesses when newly fused. It will be observed that the makers enclose this caustic in sealed glass tubes, evidently because of the injurious action of damp upon its tenacity.

If it be desirable to produce a very firm and tenacious caustic cylinder, the writer has long since suggested the best way of doing this, which is by mixing up with the fused material a small quantity of long asbestos fibres. These will hold the crystalline particles together, and the preparation is not influenced by damp. The tenacity given to common mortar by the mixture of hair with it, gives a practical example of the value of this suggestion.

But the whole difficulty has, in the writer's opinion, been long since removed by a simple and useful instrument. A modification of this instrument has been in constant use by the writer for more than ten years, and was exhibited by him with the perforated caustic more than eight years ago at a meeting of the Western Medical Society. More recently this invention has been taken up by the French surgeons, whether with or without the knowledge of its original source the writer is unable to say. But the author desires to put on record this claim to the originality of his instrument, a condensed account of it being contained in the proceedings of the society just named.

The simple idea of the instrument is the solid and unyielding support given to the brittle caustic by passing a metallic pin through the centre of the cylinder. To effect this the caustic must be cast hollow, and after some little trouble the writer succeeded in making a simple mould by which it can be accomplished. The moulds employed are of two forms, that for casting cylinders and the original one for casting bullets of caustic. In each case the central perforation is produced by passing a polished steel pin through a hole in the upper and lower halves of the mould, and the fused caustic is then poured into the mould. On solidifying, the pin is easily withdrawn, and a *hollow bullet or stick* of caustic is produced. In practice

it is found best to lubricate the mould and the steel wire with a little oil occasionally. The caustic is thus readily detached from both.

The caustic-holder differs in many respects from the ordinary form, but is really quite as simple, and by no means liable to injury or derangement. It consists of a small socket of silver, bisected and carried on the halves of a slender metallic support, grooved internally, and externally cut to a spiral thread, on which a nut works to and fro. The cylinder of caustic drops about one-eighth of an inch into this socket, and a platinum pin, exactly like a common pin, is passed through it and between the halves of the stem. The little nut is now worked upwards, and the pin being secured by its pressure, a perfectly firm and unbreakable cylinder of caustic is held by the instrument.

There are two parts of this caustic-holder to which, in addition, the author invites notice—the stalk and the cover. The former is made of a large porcupine quill, the polish, elasticity, lightness, and strength of which make it an invaluable handle for a surgical tool, and especially for one frequently immersed in water. The cover is *perforated* at its end, and by this simple contrivance the caustic is always kept dry and hard, instead of in the half deliquescent and filthy condition in which it is found in the holders with covers hermetically closed at the end. The small perforation at the end admits the air to the caustic, and causes the evaporation of any fluid which may hang about it. The comfort and handiness of this instrument is promoted to no slight extent by these two features in its construction, and the writer can strongly commend them to the notice of other obstetric practitioners.

For many years the author has used no other caustic-holder or caustic than that here described; and having had during that time a very large experience of the value of this simple invention, he would now beg to offer it for the use of others similarly engaged. The instrument and the perforated caustic may be procured at several of the best instrument makers,* and the writer can assure any who make trial of it that in a very short time it will save its cost in the extraordinary economy with which it can be used, the caustic being available to the last fragment. In conclusion, the writer would observe that it has been objected to him by some surgeons that it is rather a benefit than otherwise to leave a piece of caustic behind in the cervical canal. The severe pain, the great amount of hemorrhage and discharge, and the extensive excoriation of the external parts, which follow this surgical blunder in treating diseases of the cervix uteri are, in the writer's opinion, a sufficient condemnation of the accident. The deliberate practice of breaking it off intentionally is certainly not warranted by its results nor necessary to the cure of disease—*Obstetrical Transactions, Vol. IV., 1863, p. 120.*

117.—ON THE TREATMENT OF CROUP AND OF THE THROAT AFFECTION IN SCARLATINA

By Dr. G. HAMILTON, Falkirk.

[Speaking of the throat affection of scarlatina, Dr. Hamilton observes:]

Where it has made its appearance in a family, I would say that nothing should be taken for granted. Let the throat of every member of it be examined daily, and let the first appearance of inflammation or of lymph be regarded as sufficient evidence that treatment is required. With this precaution, I feel certain that a large proportion of what apparently are sudden seizures may be got under treatment some, and frequently many, days before dangerous symptoms show themselves, and that the occurrence of these may be anticipated and prevented, or at least their intensity greatly abated. To any one who has attended carefully to even the local treatment of the

* Mr. Coxeter, who was employed by the writer in the first instance to make this instrument, has succeeded extremely well in its production, and also in that of the perforated caustic.

analogous throat and laryngeal affections in scarlatina anginosa and in croup, nothing, I think, can be more gratifying than to see the command which prompt, early-begun treatment has over these destructive affections. Out of many hundreds of scarlatina cases which I have had under my care, I can remember scarcely a case in which, if I saw it within the first twelve or even twenty-four hours from the appearance of the eruption, I was not able, simply by assiduously applying the solid caustic, or the solution, to the tonsils and surrounding parts, to keep these in a comparatively entire and healthy condition; and this even where the case was, from other causes, running on to a fatal issue. Without such treatment, I cannot doubt that in these instances the tonsils would often have been found after death, what most surgeons conversant with this disease must have seen them become when neglected, a pulpy sphacelated mass, with the marks of intense inflammation in the adjacent parts. In croup, also, I know of no treatment which is so satisfactory as the application of the caustic solution, provided it be made immediately on the appearance of the characteristic ringing cough. In the latter paper I have alluded to, I mentioned that I had repeatedly in my own family had occasion to employ this remedy; and I repeat now what I said then, that I have generally found the croupy cough and breathing to have either disappeared or to be greatly improved, within half an hour after one or two applications. Two conditions, however, seem to me essential to success: the first is, as I have said, that the application shall be made *very early*. How early it must be made, to secure a considerable measure of success, it is not easy to say, as cases differ much in the rapidity with which they advance; but my experience has taught me, that very generally, if the disease has lasted for only ten or twelve hours, the caustic solution produces, for every hour lost, less marked effects. Acting on this experience, I have for many years made the whalebone and sponge part of the furniture of my pocket-case, and the moment I am called to a patient with the slightest croupy cough or breathing, I improvise a solution with my solid caustic, and touch the glottis. The second condition necessary to secure success is, that not the throat merely (which I have never found much affected in real croup) should be sponged, but that the glottis should be touched and that some drops should fall into the larynx. With a little practice and dexterity this is easily done, even in infants. That the solution has really got into the larynx, we are assured from noticing the interruption to breathing which takes place in consequence. A good many years since, to satisfy myself as to the precise bend and dimensions required in the whalebone, in order to strike the glottis in children with precision, I extracted the cervical vertebra, and opened the pharynx from behind, when making a post-mortem examination of a girl five years old, who died of croup, and I found that the arm to which the sponge is fixed should be about $2\frac{1}{4}$ inches long, and the bend not quite that of a right angle. A firm piece of whalebone should be chosen; and to prevent the sponge slipping off, I have two small holes drilled in the whalebone, and the sponge sewed on through these.

Since the above was written, I have also used a simple little instrument for dropping the caustic solution into the larynx, and trachea. It consists of a bit of india-rubber tube, of the smallest size, tied gently on the upper side of a firm piece of whalebone, having the proper curve. With this, a quarter of a drachm of fluid, or more if wished, may with the greatest ease be dropped over the glottis; and any one can easily satisfy himself by experiment that some of the fluid reaches the trachea. In using the instrument, I place the quantity of fluid wanted in a wine-glass, draw it up the tube with the mouth, compress the tube with the finger at the proximal extremity to prevent escape, and withdraw the pressure when the tube is over the glottis.

—*Edinburgh Medical Journal*, August, 1863, p. 132.

118.—ON THE TREATMENT OF HOOPING COUGH BY BELLADONNA AND SULPHATE OF ZINC.

By E. GARRAWAY, Esq., Faversham.

[During the last winter, Mr. Garraway has treated between fifty and sixty cases of hooping-cough, by belladonna and sulphate of zinc. He suspends those remedies at once if any thing like bronchitis or pulmonary congestion supervene.]

The first three cases I saw occurred in a school. They were boys between the ages of six and nine. The paroxysms in all were moderately frequent and severe; the general health was good. Two were placed under my care; the third was left to take his chance. In eighteen days my patients had entirely ceased to cough, whilst the other boy was in precisely the same state as when I first saw him, and so continued for several weeks afterwards.

A little girl between two and three years old was brought to me, whose fits were described to be of the most violent character; and indeed the poor child's appearance did not belie the mother's statement, for both conjunctivæ were so entirely ecchymosed that the white sclerotic coat was invisible: no blow, however severe, could have produced a more complete pair of black eyes. For a fortnight there was not the slightest improvement, and I was in consequence much troubled to keep my patient up to her medicine; in one week more, however, the cough was gone, and the ecchymosis had completely disappeared.

Three weeks afterwards the mother came for the same medicine for her infant, eight months old, who coughed and whooped, she told me, a dozen or twenty times in the day and some half-dozen times in the night—not a severe case. I exhorted her not to be disheartened for three weeks, but to come regularly for her supplies. She never made her appearance again; and on meeting her some time afterwards, and expressing my regret that the treatment had not been followed up, she replied: "Why, the medicine you gave me lasted a week, and by that time the cough had entirely ceased, and has never returned."

These are samples (which might be multiplied) of the more favourable class of cases. Others were marked by a steady improvement, commencing at once and continuing day by day; but at the same time I must admit that not a few required fully three weeks to make a decided impression. After this period, however, the improvement was most rapid; indeed, treatment was seldom continued beyond the third week. The most lengthened period, for which in any case, belladonna was administered was five weeks. I found that if by this time the cough was not quite gone, it was nevertheless desirable to discontinue the remedy; as it would seem that after the system was thoroughly saturated, a further persistence deranged the general health without any commensurate advantage accruing: the tongue became coated, the appetite failed, and vomiting without cough would occasionally occur. On ceasing, however to take the medicine, not only did all these untoward symptoms subside, but the remains of the cough vanished with them.

Marsh miasmata appear to render hooping-cough, as they do most other forms of disease, more intractable; and two children I could do nothing with until removed from the swamp in which they resided.

The mode of administering the belladonna was in the form of extract, either diffused in water with the sulphate of zinc and sufficient syrup to make it agreeable to young children, or, to those who were old enough and preferred it, in the form of pills,—the dose being from one-sixth to one-fourth of a grain of the extract, and one-half to a grain of the zinc, three or four times a day, steadily increasing the amount till, at the end of three weeks, children of five or six years old would be taking from four to six grains of belladonna, and twice that quantity of sulphate of zinc, daily.

So far as my investigation went, it would appear that both the tolerance of the remedy and the speedy subsidence of the disorder were in inverse proportion to the age of the subject,—a child of eight or ten weeks old bearing a

much larger proportionate dose than one of eight or ten years, and manifesting a much more rapid improvement. In this I find I am in accord with other observers.

Dilatation of the pupils and indistinctness of vision commonly came on after a few days. When these effects manifested themselves the dose was diminished somewhat; but having been assured by Dr. Fuller, of St. George's Hospital, whose experience of the physiological effects of belladonna has been considerable, that no permanent injury ever resulted from this condition, I did not think it necessary to interfere with the general line of treatment.

In two cases, more decided poisonous symptoms were developed. One was a little girl of six, who had reached the amount of six grains daily, and whose pupils had been dilated more or less for a week. This child became one day, as her parents termed it, "silly," delivered wrong messages, gave inapt answers, asked what had become of her sisters when they were present, and talked in an incoherent and ridiculous manner. This state quite passed off the next day by discontinuing the medicines.

The other case was that of a very delicate little girl of four years, who had attained to four grains a day. I was called to her in the night under the great alarm of her parents. She had been in a state of immoderate mirthfulness and excitement during the evening, and on being put to bed could not be quiet, and at length became delirious, singing, calling for her mamma and nurse, of whose presence she was unconscious, picking at the bed-clothes, seeing imaginary objects—in fine, presenting a train of symptoms very analogous to what we witness in delirium tremens in the adult. This state was succeeded by three or four hours of refreshing sleep, such as the child had not experienced for many nights. On awaking, she was perfectly restored, and from that hour the improvement was remarkably rapid. I need hardly say I suspended the remedy for a day, and gave it afterwards in diminished doses.—*Lancet*, Oct. 17, 1863, p. 446.

119.—ON THE TREATMENT OF HOOPING COUGH.

By Dr. HENRY WILLIAM FULLER, Physician to St. George's Hospital.

[The following passage is taken from a work recently published by Dr. Fuller, "On Diseases of the Chest." The catarrhal stage of the affection must have passed off before the plan of treatment advised is adopted.]

"As soon as the whoop declares itself, a draught is given every three or four hours, containing half a grain or a grain of sulphate of zinc, and a sixth of a grain of extract of belladonna to two drachms of syrup, in from two to six of water, and an additional grain of sulphate of zinc, and an additional sixth of a grain of belladonna are added to each dose daily, or every alternate day, until the quantity taken daily amounts to from six grains to a drachm of zinc, and from two to six grains of the extract of belladonna, according to the age of the patient. To children under a twelvemonth old I have never administered more than ten grains of zinc and two grains of belladonna daily, which were given in doses of a grain and a quarter of the zinc, and a quarter of a grain of belladonna every three hours; whilst for children of eight or ten years of age I frequently prescribe half a drachm or two scruples of the zinc, and six grains of belladonna. If the dose be gradually and cautiously increased, the medicine will not occasion sickness; and as it neither heats nor excites the patient, it may be given as soon as the true nature of the complaint is ascertained. Its administration, however, need not preclude the exhibition of other remedies; and if there is feverish heat of the skin and persistent quickness of breathing, indicating inflammation of the lung, or if the bronchial flux is great and oppresses the breathing, it is always prudent to have recourse to auxiliary measures."

That belladonna is a drug which the system will tolerate in much larger doses than has usually been supposed possible, has been made known to the

profession through the medium of a paper by our author in the forty-third volume of the Royal Medico-Chirurgical "Transactions." The precautions to be observed in its administration being that it shall be given daily in divided doses, and that these shall be gradually increased, a sudden large augmentation being speedily followed by its characteristic signs of poisoning.—*British and Foreign Medico-Chirurgical Review*, July 1863, p. 18.

120.—TREATMENT OF HOOPING-COUGH WITH THE BROMIDE OF AMMONIUM.

By Dr. G. D. Gibb, Physician to the Westminster Hospital.

[Dr. Gibb has lately tried the bromide of ammonium in various diseases, and in hooping-cough amongst the number. In some cases the results were very satisfactory. The following are from the clinical remarks of Dr. Gibb, appended to some cases published in the *Lancet*.]

Judging from his experience at the West London Hospital, he would say that hooping-cough, even in very bad cases, could be readily cured by the new salt of bromine; but, like many other remedies, it could not be expected to cure the disease invariably. Learning from experience the effects of the salt upon the mucous membrane of the entire body, but more especially of the upper respiratory tract, he thought that hooping-cough was one of those diseases that ought to be submitted to its influence, and in the general results he was not disappointed. As a permanent remedy, he had more faith in the dilute nitric acid given in pure syrup, when combined with topical application to the larynx of a solution of nitrate of silver; but as others had either found it useless or had not given it a trial, it was but right that other agents capable of curing the disease should be made known, and one of these was bromide of ammonium.

With regard to the dose: for infants, two or three grains three times a day are enough; to older children from four to eight grains may be given, and in some cases, where the symptoms are remarkably severe, even ten grains. The simpler the vehicle the better, but if there is a tendency to bronchial or pneumonic inflammation it should be combined with either a mixture or the wine of ipecacuan.

The special nervous symptoms seem to be more under the control of the drug than the catarrhal, for the spasms diminish in frequency and severity, and consequently the whoop is not so often heard, showing a subsidence of the active symptoms. *Pari passu*, the cure is not more speedy than from the dilute nitric acid in uncomplicated cases; nevertheless it is worthy of a more extended trial, especially in severe and obstinate cases.—*Lancet*, Sept. 26, 1863, p. 365.

MISCELLANEOUS SUBJECTS.

121.—ON ASSIMILATION AND THE INFLUENCE OF ITS DEFECTS ON THE URINE.

By Dr. F. W. PAVY, Assistant Physician and Lecturer on Physiology, Guy's Hospital.

[Fat is a material, having a destination totally different from the principles belonging to the azotised group. It is in some sense an article of nutrition, but the chief ultimate destination of the oleaginous principle in the animal system is towards the production of heat, by undergoing a slow process of combustion or oxydation in the animal system.]

Fatty matters pass through the mouth and stomach without being digested, or rendered fit for absorption. According to Dr. Marcet's researches, however, neutral fats are acidified in the stomach, and placed in a state for being emulsified by the bile, the bile having no power to emulsify the neutral fats. When the fat of meat is consumed, the areolar tissue belonging to the adipose texture is dissolved, and the oily matter liberated, so that it may be afterwards prepared for absorption. Into the intestine a fluid is poured beside the bile—namely, the pancreatic juice, one special province of which is to emulsify or minutely divide the fat so that it may pass into the lacteals, and afterwards enter the circulatory system.

Dr. Bright arrived at the opinion, from pathological observation, that the pancreas was concerned in the digestion of fat. He noticed in cases of obstruction of the duct through malignant disease in the neighbourhood, that fat was allowed to pass and to appear in the alvine dejections. There are specimens of solid fatty matter preserved in the museum of Guy's Hospital that were obtained from cases of this description. Bernard, in the most conclusive manner, has since confirmed the opinion thus entertained by Dr. Bright, and established upon physiological grounds the function of the pancreas connected with the digestion of fatty matter. Nothing can be more decided than the influence enjoyed by the pancreatic juice in emulsifying fatty matter the instant the two are brought in contact. By this emulsification the fat is reduced to an exceedingly minutely divided state, without any chemical change occurring. According to Bernard, however, when the emulsion, resulting from the admixture of pancreatic juice and oil, has been placed aside for some hours, it is found that the oil has undergone a chemical modification, and become converted into glycerine and fatty acid. But it would seem from the experiments of others, that this chemical decomposition does not ordinarily take place in the digestive canal, the fatty matter being only there emulsified, or finely divided, so that it may pass by absorption into the lacteals. With this specimen of pancreatic juice that I have before me it is easy to show the effect that is exercised by it during life. On agitating it in a test-tube with some olive oil, a milk-like liquid is immediately produced, which, be it observed, will retain its milk-like character on repose. No such effect is produced by saliva. The oil, by agitation, is reduced to small globules, and distributed through the liquid, but it will soon separate and rise to the surface *on being placed aside to repose*.

It is a well-known fact that after the ingestion of fatty matter by one of the mammalian animals the absorbents derived from the intestinal tract are filled with an opaque milky fluid; and hence their name—lacteals. Experiments were performed by Bernard to ascertain if the absorption of fat was alike in all the vertebrate classes. According to his results it is only amongst mammals that lacteals can be truly said to exist; for the introduction of fat dissolved in ether into the alimentary canal, which so rapidly gives rise to the presence of a milky fluid in the intestinal absorbents of the mammal, occasions no such occurrence amongst the other vertebrate animals. It is, following this physiologist, the portal system that forms the channel through which fat enters the system in the bird, reptile, and fish.

The examination of chyle has shown that the fatty matter which has been absorbed exists in a neutral state. It is simply in a condition of extremely minute division and as such is poured by the thoracic duct into the circulatory system. Unless arriving in considerable quantity in the circulation, it is lost sight of, probably from undergoing saponification and solution, after mingling with the blood. If blood be withdrawn, however, a few hours after the copious ingestion of fat, the existence of this principle in a free state, or simply in a state of suspension, will become manifest by the formation of a white cream-like layer on the surface after the fluid has been allowed to repose. Examined microscopically, this cream-like layer is found to consist of exceedingly minute particles of fat, such as those which constitute the molecular base of chyle.

Having traced the entrance of fat into the circulation, I may now speak of its escape with the urine. It is exceedingly interesting to observe that this alimentary principle resembles albumen in passing off through the kidneys after a very copious ingestion. I quote from Dr. Bence Jones's work, "*On Animal Chemistry in its Application to Stomach and Renal Diseases*," that "Tiedeman and Gmelin fed a dog for four days on butter, and killed it three hours after the last meal. The urine was thick; and on being filtered, butter soluble in alcohol was left on the filter. They add: 'one of our pupils who likes fat has frequently found it in his urine.'"

But there is a peculiar morbid state of the system which is attended with the elimination of fatty matter in the urine after its ingestion in the ordinary way with the meals. This complaint—chylous urine—seems to depend upon a defective assimilative action. It is of but rare occurrence, particularly amongst the inhabitants of temperate climates. The urine contains fat in the form of an emulsion, which creates the milky or chylous appearance. But, strikingly enough, the unnatural state does not stop here; for other principles which ought to be retained pass off with the secretion from the kidneys. The urine undergoes spontaneous coagulation from the presence of fibrin. It also contains albumen. And, from a case to which I shall presently refer, it appears that sugar may also be present.

The introduction of oil directly into the circulatory system is attended with the most serious consequences, and the state of the urine it occasions is of interest on account of the same chemical principles having been observed in it as have been noticed in chylous urine.

There yet remains another group of alimentary principles for me to speak of—the saccharine group. This, contributing towards the production of animal heat, has the same destination as the oleaginous; but there being a sufficient amount of oxygen in the compounds belonging to it to form water with the hydrogen they contain, their combustion, taking weight for weight, will be necessarily attended with the evolution of a less amount of heat.

The sugars and starch form the chief principles belonging to the saccharine group. The sugars require no digestion or special preparation for absorption. Both cane and grape sugar being exceedingly soluble and diffusible will pass with facility through the limiting membrane of the alimentary tract into the circulatory system. To what extent, or whether to any extent, cane sugar is converted into grape sugar before absorption, I am not aware has been shown; but some experiments of Bernard upon horses prove that cane sugar—some, if not all—passes as such into the portal system.

From a quarter to half an hour after the ingestion of sugar by horses, Bernard says, "sugar was found in the portal blood, even in the state of cane sugar, just as it had been taken, for all had not been changed into glucose or grape sugar."

Starch requires to undergo transformation to render it susceptible of entering the system. Starch, as such, it may be stated, is of no use to the animal being, because it cannot be absorbed and appropriated. It refuses to traverse animal membranes. Being easily transformed, however, by certain secretions produced by the digestive apparatus into a diffusible principle like sugar, it is placed in a position for being turned to avail in the processes of life. The human saliva enjoys the property of almost instantly converting starch into sugar; but, curiously to observe, this property is almost peculiar to the human subject. Although, however, the effect is so immediate as it is when acting upon a decoction of starch, yet it is not often that starch is ingested in so favourable a form for rapid metamorphosis; and its period of duration in the mouth is so transitory that it may be assumed, physiologically speaking, that there is not a digestive effect of any material consideration exerted upon starch in the mouth even amongst ourselves. The saliva, again, would lose whatever metamorphosing influence it possessed, on the stomach being reached and the food mingling with its acid secretion; for the presence of an acid is unfavourable to the transformation of starch into sugar by saliva. Dr. Bence Jones has suggested that the acid itself of the stomach may exert an influence towards converting starch into sugar. And what I witnessed in an experiment of my own not very long ago, corroborates such a view. I had been keeping a rabbit for a few weeks solely on a diet of starch and cane sugar. This food was injected into the stomach through a tube passed down the œsophagus, so that it did not come in contact with the mouth. After death, grape sugar was found amongst the contents of the stomach, although none was contained in the food introduced. There is here, of course, no actual proof, because two materials, each susceptible of transformation into sugar by an acid, were employed; but starch is as readily thus transformed into glucose as cane sugar, and therefore may reasonably be taken as having constituted the source of certainly a part of the glucose encountered. Doubtless, however, it is the pancreatic secretion which, in the natural course of events, forms the chief agent intended for the digestion or transformation of starch. In the first place, the pancreatic juice, not only of the human species, but of animals in general, possesses, like human saliva, a highly transformative influence over starch; next, the conditions in the duodenum are all in the highest degree favourable for transformative action; the strong acidity of the gastric juice has been more or less neutralized by the alkalinity of the bile, the food is delayed in contact with the secretion during its gradual transit along the intestinal canal, and the temperature is all the while maintained at an equable and elevated degree.

Sugar, whether ingested as such, or derived from the metamorphosis of starch in the alimentary tract, passes by osmosis into the circulatory system, and is carried to the liver. It requires no special manifestation of vitality to bring about the passage of sugar into the circulation, when present amongst the contents of the alimentary canal. Both cane and grape sugar enjoy in a high degree the property of diffusibility, and thus, in obedience to physical laws, will reach the circulation from the stomach and intestine. It would seem from the experiments of Prof. Bernard that this is the only manner in which sugar enters the system. On giving horses a solution of sugar to drink, and destroying life from a quarter to half an hour afterwards, he found sugar in the portal blood, but never, he tells us, did he discover the least trace of saccharine matter in the contents of the lacteals collected between the intestines and mesenteric glands. The absorbent system would thus appear to have the power, not only of picking up certain materials (oleo-albuminous) from amongst the intestinal contents, but also of refusing entrance to others, although existing in a soluble state. Now, admitting such to be the case—and I see no reason to doubt it—there is, I think, to be discovered in this arrangement a provision wisely har-

nizing with circumstances connected with the subsequent disposal of sugar in the system. In anticipation of what I shall shortly have to speak of, I may mention that the information in our possession goes to show that sugar must be conveyed to the liver in order to be of service to the system as an alimentary material. The introduction of sugar into the general circulation is followed by its elimination from the body with the urine. If, then, absorption of sugar took place through the lacteals, as the chyle flows into the general venous system without traversing the liver, there is reason to conclude that such sugar would nearly, if not entirely, all simply pass through the system, and escape with the urine as a useless material.—*Lancet*, July 25, 1863, p. 92.

122.—NOTES REFERRING TO INVALIDS WHO ARE ABOUT TO PROCEED UP THE NILE.

By Dr. A. LEITH ADAMS, 22nd Regiment.

[The following paper is intended by the writer simply to record the result of casual observations made during a tour in Egypt, and especially to point out the circumstances likely to interfere with the comfort and well-being of the invalid.]

All experience tends to show that about the middle of October is soon enough for the invalid to make his appearance in Egypt; and the middle or end of April ought to see him clear of Alexandria. Three different descriptions of persons visit the Nile during the winter months: 1st. The healthy, for pleasure. 2ndly. Patients suffering from general derangement of health, but only in a degree which does not absolutely require a companion. I would remark at the outset, with reference to this second description of person, that as he may often go to Egypt alone, and trusting (perhaps on the score of economy) to be able to join a boat party at Alexandria or Cairo, he cannot be too discreet in making his choice of companions, and ought to see that he does not join those who are going for mere pleasure and amusement. I am aware of grievous injury having arisen to delicate young men in consequence of having overtaxed their strength in this way.

The European Hotels in Alexandria and Cairo have been remarked on by all medical writers as being very comfortless, and my experience is the same. The cheerless and dirty condition of the Alexandrian hotels ought to render the invalid's stay a short one, and (unless, perhaps, being in general quieter, and more removed from the din and bustle of a crowded city) those of Cairo are little better. No class of people are more sensible of the defects of the Egyptian hotels than the overland passengers, who have all one story to tell of the bad arrangements at present in force. Speaking in a sanitary sense, to the many invalids homeward bound from India, I can conceive nothing more trying, or more likely to aggravate their condition, than the tedious railway journey and stoppage at Cairo. The former might, with proper management, be curtailed to nearly half the time at present expended, and a proper refreshment-room at the Cairo station would render it quite unnecessary for the traveller to make any further stoppage between the Mediterranean and the Red Sea.

To return to our subject. On arriving at Alexandria, the invalid has three ways open to him, either to take a boat and proceed up the river at once, or to choose a boat, but engage it from Cairo, proceeding thence by railway. There are, however, abundance of boats at the latter city. Perhaps, on the whole, the better plan for those in a really weak state is to hire neither dragoman or boat until they arrive at Cairo.

With reference to the first, it is of essential importance that a man of reputed good character should be obtained, and it would be well if the invalid could discover beforehand the names of the best Maltese and Egyptian dragomans. The dragoman need not, however, be definitely engaged until the boat has been fixed upon, which ought to be inspected with care, to see that the *Satara* (outside curtain) covers all the windows, and that the

glass and lattice windows fit properly, and the furniture is complete. Boats are greatly to be preferred which have a canopied and cushioned seat outside, in front of the saloon; there the invalid can sit when the wind or sun prevents his going on deck. This arrangement is invaluable, and especially during the cold northerly winds in January and February. The crew, averaging from ten to fourteen, ought, with the exception of the cook-boy, to be strong, able-bodied men. On these seemingly trivial points much of the comfort of the invalid will depend.

There are different ways of hiring boats: first, by the trip, *i. e.*, arranging with the dragoman to take you at a fixed price to and from the first or second cataract, allowing a certain number of days to see the antiquities, &c., on the way. By this plan the traveller selects the boat, but he is left entirely at the mercy of the dragoman, whose interest is, of course, to get through the journey as soon as possible. I never should recommend this procedure but to the strong, or, in fact, any plan which does not make the invalid master on board. Secondly, by hiring the boat and provisioning it one's self. This is a troublesome business, and cannot be performed but by those who are accustomed to travelling in that particular way, or are disposed to take the trouble and have the requisite strength to enable them to make arrangements with the merchants in the bazaars. Thirdly, the dragoman to undertake the whole business at so much a head per day, and on the whole, considering the usual run of these persons, and cooks, this is unquestionably the most desirable plan, at the same time it ought to be especially noted in his contract, that unless at the usual stated places, where the crew replenish their stores, he is not to require any delay on his own account. The invalid of course will communicate with the dragoman, as to the articles he desires, and it would be well to see that they are on board before sailing. All European provisions, such as wine, beer, preserved meats, sago, &c., are procurable at Cairo, at high prices, which influence of course the dragoman's rates. There are few treatises on Egypt which do not detail pretty fully the probable expenditure of the Nile voyage, now, unfortunately, becoming more and more expensive, so much so, as to make it a matter of grave consideration with the physician when he finds it advisable to recommend the climate to his patient. The items of travelling expenditure to Egypt and hotel charges may in general be put down at the same rate as in Europe. The Nile voyage may be reckoned for a party of three at from £100 to £120 per month. Of course it may be done for somewhat less, and there are gradations according to the scale of comforts required.

In making arrangements with reference to messing, the invalid ought not to omit the *geshteh*, the Devonshire cream of the East, if it agrees with him. It is especially nutritive, and should form part of his breakfast, where it might be a substitute for the native butter, which is not to be recommended.

The healthy as well as the weak are subject to diarrhoea on arrival in Egypt, a circumstance all experienced observers have also noticed with reference to other countries. The change from the daily routine and established habits have very much to do with it, and of course persons of a weak digestion are apt to have one or more of their symptoms aggravated. In the East the Nile water is looked upon by many as the great cause, but few think of the other adjuncts, such as divers cooked articles of food, &c., to which they have not been before accustomed, and which the sharpened appetite of the new comer is apt to indulge in unusual quantities.

The physician in my opinion can recommend no better advice to his patient on this head than that so lucidly described by Sir James Clark in his admirable work on climate; I would moreover advise that the invalid should live sparingly for the first few days, and imitate as much as possible the food and cooking to which he was accustomed previously, being at the same time careful to notice the first signs of derangement in digestion; with these precautions I think he may safely drink the cool and delicious water of the Nile. The physician will do well to find out from his patient, before finally deciding on the Egyptian climate, that he is not one of those idle, cheerless, and unhappy beings who has no resources within himself. To such a person

the Nile voyage will soon become tedious, and most likely unprofitable. This is more especially the case with certain dyspeptics, who frequently find themselves worse instead of better at their journey's end; indeed, those in rude health who have no active pursuits, mental or bodily, soon get tired of the monotony of the Nile boat-life, and the humdrum existence which savours little of the enjoyment of society; nevertheless, he who can combine instruction with amusement, need never know a dull moment.

Although the river scenery is constantly changing, there is often considerable sameness; at all events, a supply of books is a desideratum. The naturalist may

"Converse with Nature's charms, and view her stores unrolled,"

The draughtsman will have ample scope for his pencil, and may feast his fancy among the noblest of old world ruins. The latter can easily be visited on donkeys, a gentleman and a lady's saddle being usually part of the draughtsman's outfit. There is a caution, however, that ought always to be given, which is, Beware of the cold mephitic air and draughts in many of the temples and tombs. Abou Simboul, in Nubia, and the Tombs of the Kings at Thebes ought not to be visited by phthisical patients, especially persons subject to bronchitis. With reference to clothing, it is essential that the invalid be supplied with changes of both light and warm descriptions; these he may require to don and doff often twice during the day.

Unless well wrapped up, and under an awning, it is not advisable for very delicate invalids to leave the saloon after sunset. During November and the three following months dew falls profusely at night all over the valley below Thebes, commencing at 9 p. m. It is, however, usually dispersed before 9 a. m., and, in the shape of fleecy cirri, floats at high altitudes in an otherwise clear and delightfully serene atmosphere. In Nubia, as the cultivated tracts disappear and the desert approaches the river, the dew all but vanishes, and thus, after passing the first cataract, the climate, from being more or less moist, becomes exceedingly dry. Before starting, it will be well to hang about in the river for a day or two, to see that "all is right," and especially that the boat is made comfortable and the provisions safely on board. Some invalids sail at night when the wind is favourable; but, as time ought to be no object, the preferable plan, I conceive, is to halt at 9 p. m., and start after breakfast. By this means he enjoys the scenery, and is saved the annoyance of a "creaking helm" at night. The boat ought always to be placed so that the morning sun will shine on one of its sides for two hours before the invalid arrives in the saloon, the lattice windows of which have been opened and the satara coiled up at sunrise. The object of this is to dispel the sharp morning air, which to some may appear an insignificant proceeding, but I feel persuaded that no invalid with susceptible air-passages, who has once experienced the raw, comfortless feeling of getting out of bed and dressing with an Egyptian north-wind blowing upon his boat, but will appreciate the above recommendation. Again, on the downward voyage, when the north-wind blows, cover the stern windows with the satara, and allow the boat to drift end on with the stream, whilst the patient sits in his sheltered seat under the verandah, in front of the saloon. I have a vivid recollection of a case of tubercular disease of the lungs very little benefited by the Nile voyage, from the patient not having been instructed beforehand to see to many of the little details I have just mentioned. A comfortless boat, without an outside curtain, full of draughts from badly-fitting doors and windows, obliging the invalid to shut herself up during windy weather, or even take to bed, is enough to spoil all the good intended. I was not therefore surprised to be told by the above patient that the "Nile had done her no good;" and I dare say long before this, the medical adviser in England has been told so likewise, little knowing that his patient went the wrong way to obtain the desired benefits of the climate. Here and there, up to the second cataract, we notice the grave of some poor patient, who would have done better to have stayed at home. Such cases are not frequent, however, and although they have often been put down to *injudicious advice* on the part of the medical adviser, it is well known in all

countries frequented by invalids, that great numbers of patients will persist of their own accord in making pilgrimages to such places, when at the best they can only be "hoping against hope." The grand advantage of the Egyptian climate in winter is its daily serenity and sunshine; however strongly the wind may blow, a sheltered nook, after 9 or 10 a. m., will always be a sunny one. To those therefore with susceptible air-passages, it is a matter of no little importance to be aware of this circumstance, and able at the same time to have certain simple measures at their own command, which will modify, in a great degree, the deleterious influence of the weather. There can be little doubt that the climate of Upper Egypt, Nubia, and the desert, from their superior dryness, are better suited for the generality of tubercular patients than that of the Delta and the cultivated tracts of the low country. Much, however, depends on the morbid changes which have taken place, or are in course. But Nubia appears to me the climate, of all in the Nile Valley, between Alexandria and the second cataract, that is most likely to agree with phthisical patients, to many of whom the sharp and bracing air of the desert is too strong. Accordingly, I would recommend the patient, if he feels benefited by the voyage on arrival at Aswan, to push on to the second cataract, and tarry as long as the weather will permit. He may return to the first cataract towards the end of February, and bask for a few days in the sunny creeks, among the rapids; there he can enjoy fine scenery, and a delightful climate. If he is able and inclined to stroll through Philæ's interesting ruins, the boat may be anchored in the sheltered nook, just under the noble old temple of Æsculapius,—methinks no unsuitable place for him who feels the better for his Nubian tour;—*more poetæ Venusiani*, he may even sacrifice a cock!

In concluding these stray notes, in common with those who look on Egypt from a medical stand-point, I cannot help expressing a hope (however impracticable it may at present appear) that when the resources of the "land of plenty" have been fully developed, when the talked of Central Egyptian Railway has been completed (not the Suez Canal!), we shall see European dwellings among the palm groves of Siout, Thebes, Aswan, Streni, Wadce, Halfih, &c., and hundreds of weary souls gaining new life and vigour from the climate of sunny Egypt; that, however, implies a state of civilization, which is never likely to be attained, so long as a Moslem is seated on the throne of the Pharaohs!—*Medical Times and Gazette*, July 13, 1853. p. 62.

123.—SYPHILITIC TUBERCLE OF THE EYELID: ITS DIAGNOSIS AND TREATMENT.

By J. VOSE SOLOMON, Esq., Surgeon to the Birmingham and Midland Eye Hospital.

A disease for which the common tarsal tumour—the *grando* or *chalazion* of technologists—may be mistaken, is syphilitic tubercle of the lid.

The tarsal border in this affection becomes the seat of a well defined and hard tumour, in the centre and free border of which a yellowish spot is apparent. At this stage the tubercle bears a rude resemblance to hordeolum or sty.

The yellow spot sooner or later ulcerates; and if the molecular changes be not controlled by mercury, a deep notch is made in the border of the eyelid, and remains as a permanent deformity. The ulcer is at first superficial and of a dusky yellow colour, and the lid-tissue around is widened out by a circumscribed and dense exudation, as in the Hunterian chancre.

Case 1.—My introduction to this form of syphilis of the lid was made many years ago, in the case of a married lady, who consulted me respecting a tumour such as I have described. One of her eyelids was disfigured by a notch, which she told me marked the site of a tumour similar to the one which now concerned her, and which had run a natural course. The disease was not "tarsal tumour," for this never ulcerates or suppurates at the free margin of the tarsus. The chronicity of the disease and appearance of the yellow spot forbade the idea of its being hordeolum. On calling upon the

surgeon who attended the family, I learned from him that the patient had been infected with syphilis by her husband two years ago, and had been treated for secondary symptoms.

The following case affords a good clinical picture of the early stage of syphilitic tubercle :

Case 2.—A young woman, aged twenty (married), applied at the Eye Hospital on Oct. 21, 1856, with a hard tubercle on the edge of the right upper lid close to the outer canthus, and a similar tumour on the corresponding situation of the left lower lid. They were not inflamed; but presented, upon the integument at its line of union with the muco-cutaneous surface of the tarsus, an excoriated ulcer, of small size and oval shape. The ulcer on the right side was covered by a sticky secretion of yellowish colour.

The face of the patient was disfigured by syphilitic papulæ.

The velum palati was œdematous, the tonsils foul and deeply ulcerated, and one side of the tongue presented a blanched patch, in the centre of which was an ulcer. Plummer's pill was ordered.

In three days (Oct. 24) the right lid was much inflamed and swollen. The ulcers had extended; they were oval, and covered by a dirty gray crust (epithelial scales), on the removal of which a tawny surface was exposed.

Treatment was now directed to the relief of the inflammation of the integument; and gray powder in combination with the extract of conium was substituted for the Plummer's pill, which did not appear to agree.

R. Hydrargyri cum cretâ, ext. conii, aa gr. v. Fiant pilulæ ij ter in die sumendæ.

The importance of abstinence from alcoholic stimulants, the necessity of nutritious diet, and of keeping the body warm, were fully explained to the patient.

My notes for Oct. 28 state:—"There is less inflammation of the lid, the tubercles are smaller and softer, but the ulcers remain unchanged. The woman looks better, and says she feels so."

In six days afterwards (November 3), the thirteenth of the treatment, the ulcers had cicatrised, and the surrounding hardness had disappeared. The appetite was good, and the complexion wore the aspect of health. It was a long time, the poor woman said, since she had felt so well as now. She remained under observation for a time, taking small doses of the mercury and iodide of potash. There was no relapse.

For the cure of this disease, all that is needed is a course of mercury adapted to the constitutional power and idiosyncrasy of the patient. The supervention of inflammation is to be met by the application of such remedies as would be appropriate if there were no syphilitic complication.

The inflammation should not be considered as belonging to the venereal complaint, but as an independent disease; hence a leech or two and an evaporating lotion may be necessary in addition to the mercury.

In syphilis of the eyelid I have not been able to satisfy myself of the value of yellow or black wash as a topical application. The occasional touching of the sore with a crayon of nitrate of silver, in combination with nitrate of potash, is useful. A solution of nitrate of silver in distilled water, to which so much glycerine has been added as will give a coating to the ulcer, is a good form of application.

I have encountered a difficulty in the administration of mercury in two cases. Both were females: one was phthisical; the other suffered from tertiary osseous symptoms, and was old and feeble.

Cancer of the eyelid is to be distinguished from syphilitic tubercle by its history, the absence of secondary symptoms; by the accompanying tumefaction being less, and of a different feel when manipulated; by the inefficiency of mercury; and by the results of a microscopic examination of the diseased structure. I have not laid stress on the generally more advanced age of cancer patients, because I have seen a flat syphilitic tubercle on the integument of the eyelid of a woman who was nearly sixty years of age, and which rapidly disappeared under mercurial treatment; nor upon slight enlargement and tenderness of the preauricular gland, as they are common to *syphilis, cancer, and hordeolum*.

Case 3.—A woman, aged twenty-five (married to a policeman,) of strumous diathesis, complexion rather white, moderately plump, presented herself on March 17, 1863, with a red swelling of the lid, situated very near to the right tear-sac, and was prescribed for by Mr. Bowen, our intelligent house-surgeon.

On March 20th, I saw her for the first time, and noted the following symptoms. The integument of the inner half of the right lower lid is shiny and of a slightly coppery hue; and its surface slightly uneven. On taking the lid between the finger and thumb, a swelling occupying nearly one-half of the lid, of soft cartilaginous feel, and slightly lobulated in front, is discovered; to the touch it closely resembles the remains of a large Hunterian chancre of the prepuce, for which mercury has been somewhat recently administered with effect. The margin of the swelling can without difficulty be clearly defined, there is no sort of blending with the surrounding tissue.

The voice of the patient is "veiled." In the base of the uvula is a small hole with a sharply defined and rounded edge; there is no secretion from it; the velum palati is white, and chronically oedematous; the right pillars of the fauces are in the same condition, and there is a little notch in the centre of the free margin of the anterior pillar, marking the seat of a cicatrised ulcer. These parts present a diffused pale pink shade.

The patient denies all knowledge of a primary sore of the genitals, and the existence at any time of leucorrhœa or ardor urinæ. The throat has been affected upwards of six months, and the eyelid about three months and a half. She has had medical treatment, which does not appear to have included mercury in any form, or specific treatment of any sort.

The disease commenced at the inner end of the lid, and was believed to be a sty, but it never suppurated. It was at one time inflamed, and became of a large size; a leech was applied with great relief, and the swelling diminished much. At the present time, the part is not inflamed or tender, and the conjunctiva is healthy. She was ordered to take every night a pill containing hydrargyrum cum cretâ and extract of conium, two and a half grains of each; and a drachm of syrup of iodide of iron in a cup of milk three times daily.

March 31st. The tumour is nearly gone; the copper coloured stain continues, as on the 20th, well marked. The patient is looking more healthy; she says she feels better than she has done for five years, and that her appetite is now excellent. Four pills only have been taken.

The preceding case affords an example of tertiary syphilis, of the same nature as the indolent nodes (lumps!) that sometimes form in the skin of the arms or its subjacent cellular tissue, and which are much benefited by preparations of iodine and sea-air.—*British Medical Journal*, April 18, 1863, p. 394.

124.—AN ATTEMPT TO RESTORE TO ITS NATURAL APPEARANCE A PUTREFIED DEAD BODY, IN ORDER TO PROVE ITS IDENTITY.

By Dr. B. W. RICHARDSON, M. A., Senior Physician to the Royal Infirmary for Diseases of the Chest.

[The following successful attempt to restore to its natural appearance a putrefied dead body, in order to prove its identity, reflects the greatest honour on the enterprising and talented physician who conducted it. The facts of the case were these: a woman named Emma Jackson, was murdered, by having her throat cut, but the murderer, who had been seen with her by three witnesses a short time before, escaped and could not be found. Some time afterwards the body of a man was dragged from the Thames in an advanced state of decomposition. His features being unrecognizable, the witnesses could not swear whether this was or was not the man seen in the company of the murdered woman. The idea occur-

red to Dr. Richardson that the appearance of the body might be so altered as to enable the witnesses to speak to its identity.]

At half-past ten on Saturday we were taken to the dead man, who was lying in a shell in the dead-house in Darby-street, Tower-hill. He was dressed as he was when taken out of the water. His body generally, with the exception of the hands, was deeply discoloured, and the face was so changed that it was quite impossible to form any opinion respecting either its colour or feature: it was as black as the face of the darkest negro, and had it not been white when he was taken out of the water I should say that the man would have been returned as a negro. The lips were enormously distended, and the nose was scarcely visible; the cheeks and eyelids were also greatly distended. In fact, the putrefactive changes were so advanced that it required some little determination to proceed. Following, nevertheless, the course I had marked out, we immersed the body in water, and then added to the water twenty pounds of common salt; we also added gradually, in the course of the operation, one pint of common hydrochloric acid; and the body was allowed to remain under this solution for two hours. The object of this part of the process was to reduce the swelling of the features by exosmosis. The shell, being water-tight, answered as a bath.

Meanwhile we charged a pail of water with fresh chlorine, and then, lifting the face out of the water in the shell, treated it with the chlorine water. I also directed a stream of chlorine gas for some time upon the face. The object of this part of the process was to restore the white colour.

A little before one o'clock both of the intentions we had in view were realized to a considerable degree. The tumefaction was relieved; and the face, from the deepest black, had become of the cast of light clay, common wood-ash, or the darker sort of straw-paper. When the chlorine in vapour was passing over the face the skin approached to white, but so soon as it was withdrawn the change to clay-like hue returned. So much was now accomplished that we were able to form a fair estimate of the man. We found that he was evidently a young man, not more probably than twenty-one years of age; he had a short feeble moustache; his lower lip had a short soft beard that had not been shaven, and his whiskers corresponded; his face was naturally round and full, and indeed his body generally was well nourished.

At one o'clock we left, and returned at two. We had arranged that a stream of chlorine should continue to play over the face in our absence, but, as we had no one to leave in charge, the gas had become exhausted, and the face was a little darker when we returned.

Pursuing still the course I had prearranged, we opened the body. We found the viscera but little decomposed, and natural; the heart was empty and flaccid; the lungs free from congestion. We fixed a large tube in the aorta, through the left ventricle; and Dr. Edmunds tied the aorta in the thorax, so as to prevent any passage of fluid to the lower part of the body, and to the abdominal viscera. Then we injected a solution, consisting of chlorine water, chloride of zinc, and a little sesquichloride of iron. The object in this instance was to impregnate the tissues from within with the decolorizing agent, and to reduce the tumefaction. On forcing the injection we found that great escape took place through the vessels that had been divided in opening the thorax. We therefore withdrew the tube from the aorta, and as the face was the part chiefly requiring attention, Dr. Edmunds laid bare the common carotid on the right side and a small nozzle from the syringe was introduced into that vessel and tied. It must be understood that much care was required in forcing the injection through structures so decomposed and yielding, and that we dare not push this operation too far. Had we used much force we should have produced extensive infiltration through the broken capillaries, and have destroyed the facial structures altogether. So soon, therefore, as the face was subjected to slight tension the injection process was stopped. The time had now approached for the sitting of the jury at half-past four p.m. We allowed all the water to drain away, drenched the body with pure water, and left it with the face covered with a piece of thick cloth,

on which was poured a little of hydrochloric acid and methylated alcohol. The face at this time was of a clayey colour, and a little more full than natural; and although we felt that we had not brought it up to its perfect natural appearance, we believed that it might be recognizable by any one who had seen it during life, and especially that it was a face which a witness could swear was not that of any particular person whom he remembered, if there were not strong natural resemblances between the two.

The result indicated that we had effected more than we had anticipated, and that, if we had not succeeded to the perfection we could have wished, we had fulfilled the practical part of our mission and all that was demanded of us; for the three witnesses who were there either to confirm or disprove the hypothesis that the man before them was the man last seen with the murdered woman, each and all swore without hesitation, on their second view of the unknown man, that he was *not* the assumed murderer.

Margaret Curley, of 4, George-street, St. Giles's, swore that she had examined the deceased since the operation had been performed, but that she did not recognise him as a person she had seen before, nor as the person suspected; Charles Ansley, of 20, Peter-street, bore the same testimony; and H. Stoke, the shoe-man, swore definitely that, from his inspection of the deceased since the operation, he was sure that he was not the man whom he had seen with Emma Jackson. The Coroner, in summing up, observed that the experiments made having enabled the witnesses to swear that the deceased man was not the man accused of the murder, they had fulfilled their purpose, and the jury returned a verdict in accordance with the evidence.

Reflections and Suggestions.—The fact that in a case so extreme as the one named, science has come in to render essential aid to justice, affords, I hope, subject for thought and renewed effort in the same direction. I am far from considering that we ought to stop where we have thus begun. I look upon this case, in fact, as a mere first and experimental trial, which, followed up, will lead to great perfection in one department of medical jurisprudence; and I feel, consequently, that I cannot conclude this paper better than by pointing out what improvements in the process have been suggested to me by the experience detailed above.

1. In respect to time. On another occasion I would ask to be allowed at least twenty-four hours for the performance of the process. The period of six hours was insufficient for the full development of the required changes.

2. I should proceed by stripping the subject of all apparel.

3. After this the subject should be placed in a water-tight shell, in which a large tap for escape of water should be inserted, and the body should be thoroughly washed with water.

4. After the washing the body should be covered with water, and held beneath it by a few cross bars of wood. Then the lid of the shell should be temporarily but effectually closed down, and two openings should be made into the lid; through one of these openings the free end of a tube, connected with a chlorine flask, should be passed beneath the surface of the water; while from the other opening should come another tube, the free end of which should turn over into a glass globe of water. These preliminaries arranged, fresh chlorine should be driven in until the water within is saturated by it, the fact of saturation being determined by the passage of chlorine through the escape-tube. When the water around the body should thus become charged with chlorine, the openings in the lid of the shell should be closed, and the whole should be left undisturbed for twelve hours.

5. On opening the lid after the interval of time named, common salt should be added to the water, until the hydrometer should stand several degrees above the specific gravity of the blood; the specific gravity of 1100 would answer for the solution. In this solution the body should remain immersed for twelve hours; the water should then be drawn off and the body examined.

[If there were no deep decomposition and discoloration, the body, I believe, would now be ready for identification; but if the putrefaction were very deep-seated, it would be requisite to proceed further.]

6. If necessary, open the trunk of the body at this point, and make any

post-mortem observations that may be required. The head should not be opened at this stage.

7. After the post-mortem examination, in order to restore a more natural expression to the face, solutions should be injected into the external carotid of each side. The form of solutions I should suggest in another case would be—

(a) Water saturated with chlorine, and charged, in addition, with tincture of the sesquichloride of iron in the proportion of two fluid drachms to the pint.

(b) Common fresh milk saturated with common salt.

Of the injection *a*, I would recommend that from two to three ounces should be slowly injected on each side, to be followed, without removing the nozzle of the syringe from the vessel, by so much of solution *b* as should cause the slightest possible tension on the tissues of the face.

Lastly, if it were requisite to retain the body for some time, it would be advisable to cover it with wood spirit, containing one drachm to the gallon of the tincture of sesquichloride of iron, and to exclude it from the air.

In offering these suggestions, I beg that they may be accepted as open to revision; the principle recognized, the details are certain, under experiment, to be simplified and improved.—*Lancet*, May 16, 1863, p. 550.

125.—ROYAL HUMANE SOCIETY'S INSTRUCTIONS.—DIRECTIONS FOR RESTORING THE APPARENTLY DEAD.

I.—IF FROM DROWNING OR OTHER SUFFOCATION, OR NARCOTIC POISONING.—Send immediately for medical assistance, blankets, and dry clothing, but proceed to treat the patient *instantly*, securing as much fresh air as possible.

The points to be aimed at are—first, and immediately, the *restoration of breathing*; and secondly, after breathing is restored, the *promotion of warmth and circulation*.

The efforts to restore life must be persevered in until the arrival of medical assistance, or until the pulse and breathing have ceased for at least an hour.

Treatment to restore natural breathing.

Rule 1.—To Maintain a Free Entrance of Air into the Windpipe.—Cleanse the mouth and nostrils; open the mouth; draw forward the patient's tongue, and keep it forward; an elastic band over the tongue and under the chin will answer this purpose. Remove all tight clothing from about the neck and chest.

Rule 2.—To Adjust the Patient's Position.—Place the patient on his back on a flat surface, inclined a little from the feet upwards; raise and support the head and shoulders on a small firm cushion or folded article of dress placed under the shoulder-blades.

Rule 3.—To Imitate the Movements of Breathing.—Grasp the patient's arms just above the elbows, and draw the arms gently and steadily upwards, until they meet above the head (this is for the purpose of drawing air into the lungs); and keep the arms in that position for two seconds. Then turn down the patient's arms, and press them gently and firmly for two seconds against the sides of the chest (this is with the object of pressing air out of the lungs. Pressure on the breast-bone will aid this.)

Repeat these measures alternately, deliberately, and perseveringly, fifteen times in a minute, until a spontaneous effort to respire is perceived, immediately upon which cease to imitate the movements of breathing, and proceed to induce circulation and warmth (as below).

Should a warm bath be procurable, the body may be placed in it up to the neck, continuing to imitate the movements of breathing. Raise the body in twenty seconds in a sitting position, and dash cold water against the chest

and face, and pass ammonia under the nose. The patient should not be kept in the warm bath longer than five or six minutes.

Rule 4.—To Excite Inspiration.—During the employment of the above method excite the nostrils with snuff or smelling-salts, or tickle the throat with a feather. Rub the chest and face briskly, and dash cold and hot water alternately on them.

* * The above directions are chiefly Dr. H. R. Silvester's method of restoring the apparently dead or drowned, and have been approved by the Royal Medical and Chirurgical Society.

Treatment after natural breathing has been restored.

Rule 5.—To Induce Circulation and Warmth.—Wrap the patient in dry blankets and commence rubbing the limbs upwards, firmly and energetically. The friction must be continued under the blankets or over the dry clothing.

Promote the warmth of the body by the application of hot flannels, bottles, or bladders of hot water, heated bricks, &c., to the pit of the stomach, the armpits, between the thighs, and to the soles of the feet. Warm clothing may generally be obtained from bystanders.

On the restoration of life, when the power of swallowing has returned, a teaspoonful of warm water, small quantities of wine, warm brandy-and-water, or coffee, should be given. The patient should be kept in bed, and a disposition to sleep encouraged. During reaction large mustard-plasters to the chest and below the shoulders will greatly relieve the distressed breathing.

II.—IF FROM INTENSE COLD.—Rub the body with snow, ice, or cold water. Restore warmth by slow degrees. In these accidents it is highly dangerous to apply heat too early.

III.—IF FROM INTOXICATION.—Lay the individual on his side on a bed with his head raised. The patient should be induced to vomit. Stimulants should be avoided.

IV.—IF FROM APOPLEXY OR SUN-STROKE.—Cold should be applied to the head, which should be kept well raised. Tight clothing should be removed from the neck and chest.

Appearances which generally indicate death.

There is no breathing or heart's action; the eyelids are generally half-closed; the pupils dilated; the jaws clinched; the fingers semi-contracted; the tongue appearing between the teeth, and the mouth and nostrils are covered with a frothy mucus. Coldness and palor of surface increases.—*Med. Times and Gazette*, Oct. 3, 1863, p. 364.

126.—LIQUOR BISMUTHI.

Most practitioners, we believe, agree in opinion as to the special value of bismuth in painful affections of the stomach, however much they may differ as to the nature of the pathological conditions giving rise to these very common painful states of the organ. We have hitherto been confined to two preparations—the trisnitrate and the carbonate. Both these are insoluble powders, bulky and inconvenient, inasmuch as a sufficient dose cannot be made into one or two pills.

Mr. Schacht, of Clifton, has succeeded in preparing a solution of bismuth, which is uniform in composition, stable, miscible with water or other fluids without precipitation, and efficient in small doses. It appears to us a most convenient form for the exhibition of the remedy. This solution is quite transparent, with a slight alkaline reaction; and although it contains only eight grains of oxide of bismuth in an ounce, a fluid drachm for a dose is found to be equivalent to a full dose—fifteen or twenty grains—of the insoluble trisnitrate. Mr. Schacht states that before he ventured to introduce

the liquor bismuthi to the profession generally, he had its efficacy tested by four years' experience of the practitioners of his neighbourhood.

Dr. S. Martyn, Senior Physician to the Bristol General Hospital, says, "For several years past in prescribing bismuth, I have used almost exclusively the solution made by Mr. Schacht, of Clifton. It has seemed to me to act better than the old forms. I find it allay pain in acute irritability of the stomach (without nausea or much acidity), and especially in that which remains after ulceration. In hospital practice I have observed remarkable ease produced by it when given quite alone—i. e., simply diluted with water; while it was always much more satisfactory to me to use a fluid of agreeable taste than a cumbrous powder, imperfectly suspended, and not of very certain composition.

Mr. Schacht's liquor bismuthi is unquestionably an "improved preparation," and will assuredly be adopted by the profession.—*Lancet*, July 11, 1863, p. 49.

127.—CINCHONINE.

Many of our readers will have observed that recently a salt of cinchonine, the hydrochlorate, has been brought forward and recommended as a substitute for the sulphate of quinine, and alleged to be equally efficacious as a remedy in doses one-third larger than quinine. As its price is less than half that of sulphate of quinine, it is worthy of being fully tested in practice; but we need scarcely add, its substitution for quinine when the latter is prescribed would be highly reprehensible. Its physical appearance is, however, so similar, that it behoves those who dispense their own medicines to be on their guard. We are convinced that no one would more strongly condemn any such unfair proceeding than the highly respectable firm who manufacture both. The detection of the fraud, or mistake, is, however, very easy. Dissolve about a grain of the salt to be examined in two drachms of water, with the addition of three drops of dilute sulphuric acid, in an ounce phial. Then drop into the solution five or six drops of solution of ammonia. A precipitate will form whichever alkaloid is present. Now add two drachms of sulphuric ether, and shake the phial well. If the precipitate dissolves it is quinine; if it remain undissolved it is cinchonine.—*Lancet*, July 11, 1863 p. 49.

128.—CASE OF POISONING BY CHLOROFORMIC ANODYNE.

By Dr. GEORGE HARLEY, Professor of Medical Jurisprudence in University College, London.

The following case possesses several points of interest:—1st. The novelty of the poison. 2nd. The peculiarity of its symptoms. 3rd. The recovery after so large a dose. 4th. The mode of treatment.

On January 10th, 1862, at eleven o'clock a. m., Mary Anne M'G. had given to her by mistake for a black draught, six drachms of a new remedy called chloroformic anodyne. She immediately felt sick, and vomited. Before ten minutes had elapsed from the time she took the medicine stupor supervened, and so suddenly indeed, that her head dropped into the basin into which she was vomiting. Mr. Kitelee was at once sent for, and on his arrival he found the patient perfectly insensible, the pupils contracted, the face livid and the breathing stertorous. With the aid of Mr. Simpson (who was also called to the case) he applied the stomach-pump, and ejected the remainder of the poison about two hours after it had been swallowed. As, notwithstanding the treatment, the patient became worse, and appeared to be sinking, Mr. Kitelee requested me to meet him in consultation. On my arrival at about two o'clock, I found, in addition to the symptoms already described, that the pulse was no longer perceptible at the wrists, the patient's face was perfectly livid, and the respirations were reduced to six in the minute. The surface of the body was also beginning to feel cold. Artificial respiration was at once commenced

by interrupted pressure on the thorax. A pint of hot coffee, containing three drachms of spirit of nitric ether, was injected into the stomach. In about fifteen minutes the pulse became perceptible at the wrists, and the breathing increased to ten respirations in the minute. Artificial respiration was now discontinued, and a constant stream of cold water applied to the head. The effect of the latter was almost magical. The pulse got quicker and stronger; the respirations regular, and almost natural as regards number (sixteen to eighteen per minute). In twenty-five minutes after commencing the cold douche the girl's nose burst out bleeding, and immediately afterwards she began rubbing her face with her hand, but in all other respects she still appeared insensible. The cold affusion to the head was now discontinued, but in three or four minutes it had to be recommenced, as the patient had again become comatose and motionless. The reapplication of the water soon restored the power of moving not only the arms, but also the legs, and she began making efforts to avoid the water falling on her head, as if it were painful to her. The coffee and spirit of nitric ether were repeated. After two hours' application of the douche, patient had so far recovered as to be able to reply to questions like a half-waking person, or, perhaps, more properly speaking, like a drunken man.

At six p. m., seven hours after the administration of the drug, the pupils were a little less contracted, the pulse about 70, and the girl was considered out of danger. At nine p. m., she had a relapse of insensibility, and the douche had again to be applied, with slight interruptions, for nearly forty minutes. During the night she was occasionally shaken, when her sleep appeared to be too profound, and hot bottles and friction had frequently to be resorted to in consequence of the reduced temperature of the body.

On the following day I found the patient listless and drowsy. Her mother stated that she had got up for a minute, but was obliged to be immediately put to bed again, as she fainted. This occurred on one or two occasions, and, according to the mother's account, the girl had even fainted with her head upon the pillow. The pupils were still very much contracted and quite insensible to light; pulse 104. She answered questions, but only by a yes or no. Her breath smelt strongly of the poison.

The patient remained more or less under the influence of the drug for fifty-four hours after its administration, but at the end of that time she was able to get up and walk across the room. From this time her recovery, Mr. Kitelee informs me, was uninterrupted, except that she suffered for about ten days from a slight attack of bronchitis, probably induced by the application of the cold water.

The chief ingredients of chloroformic anodyne are, I believe, simply a strong solution of opium, some chloroform, and a few drops of hydrocyanic acid. The prussic acid odour was quite perceptible in the liquid ejected from the patient's stomach.

In combining the spirit of nitric ether with the coffee, a double advantage was gained—first, it acted as a stimulant; and, secondly, as a diuretic, and thereby materially assisted in the elimination of the poison; but to the application of the cold affusion to the head the patient's recovery was, without doubt, in a great measure due.—*Lancet*, July 4, 1863, p. 7.

129.—ON THE TREATMENT OF CASES OF POISONING.

By Dr. W. R. HATRICK, Fellow of the Faculty of Physicians and Surgeons, Glasgow.

[This paper is founded on notes of twenty cases of poisoning which have occurred to the author. Eleven of the cases illustrate the different stages of laudanum poisoning. Three of these proved fatal, and lead to the inference, so far as the entire number go, that when the patient is seen in the first stage of excitement, or in the second period of drowsiness, and vomiting excited within one or two hours after the ingestion of the poison, recovery may be looked for. In two of the cases in which the stomach-pump was employed two hours after the ingestion of the poison, the fluid withdrawn was still

brown-coloured from containing laudanum. Dr. Hatrick considers that if complete coma has supervened, or remedial measures been much longer than two hours delayed, the case will probably terminate fatally; especially if the quantity taken has exceeded four drachms of laudanum, or ten grains of opium. In eight the symptoms of excitement or sopor commenced considerably within an hour. Two of the cases were fatal within a period of five hours. We pass on to the treatment followed.]

Emetics of various descriptions had been administered in the above cases of poisoning. If the patient is seen early, sulphate of zinc, followed by draughts of warm water when it begins to act, appears to be the preferable emetic and most appropriate remedy. The quantity which was given varied from a scruple to a drachm, according to the nature or urgency of the case. It has the merit of being less irritant than most other emetics, and of acting also as an astringent, thereby hindering further absorption. I have found that an interval of fifteen or twenty minutes, sometimes longer, intervenes before emesis is produced by it. It should in the first instance be given as little diluted with water as possible. In an emergency, salt and water, or mustard and water may be substituted, and their operation accelerated by irritating the fauces with a feather. When a large quantity has been taken, or a greater interval than an hour has elapsed, the stomach becomes insensible to the action of emetics, and mechanical means for removing the poison should be immediately had recourse to. The necessity for this is still more obvious when the patient cannot or will not swallow. The introduction of a flexible tube into the stomach, attached to the canula of a syringe, was first proposed by Renault in 1803 for the extraction of poisons. The *stomach syringe*, as it was then called, with valves, was, however, invented and first used in this country so recently as 1823. It has since then been the means of saving very numerous lives which would otherwise have been lost. I have occasionally had some difficulty in introducing the tube of the stomach-pump, and keeping it introduced, when required to be done forcibly, in opposition to the struggles of the patient. I have also seen some inconvenience arise from the commencing action of an emetic, which may have been given previously to its introduction. The instrument I use has a stop-cock worked by a flute-key lever, which is much more to be depended on than the older valved variety. It is of some importance that it be kept in good working order; and it is desirable to be assured of this by first using it alone with some tepid water. I frequently, especially in boys, ascertain the proper length as a guide for inserting the tube, by previously measuring with it externally the distance from the mouth to the epigaster. A point of consequence is to keep the patient awake. This is best accomplished by walking him round the room between two assistants when his strength will permit of this; by the application externally of sinapisms; by shaking, or if necessary pinching him occasionally; and by throwing cold water on his face, or in some cases passing it from a height on the head. I very recently found this last measure prove most effectual in rousing a patient from very deep hysterical insensibility, after the failure of other means. When this is done, from the insensible state of the patient, it is well to guard against subsequent bad consequences by keeping the rest of his person dry, or by a timely change of clothing. Draughts of tea or coffee assist both in rousing and in restoring the subsequent nervous exhaustion of the patient. A selection of the above remedial means should be made according to the stage of poisoning, and the actual state of the patient at the time—emetics at first, the stomach-pump, walking round the room, and cold affusion afterwards. The two last will be inappropriate if the patient is moribund; but the stomach-pump may still be used along with external and internal stimulants, warm coffee or mustard diffused in water being injected with it after any poison still contained in the stomach has been withdrawn.

Cases illustrative of the antagonistic effects of atropine and opium have been recently published by Von Graefe and others, the former having been proposed as an antidote in poisoning by the latter.—*Glasgow Medical Journal*, January, 1863, p. 381.

130.—ON GOLD DUST AND IRON FILINGS AS AN ANTIDOTE FOR CORROSIVE SUBLIMATE.

By Dr. CHRISTOPHER JOHNSON, Baltimore.

In the year 1841 a rejected lover, at that time a visitor in Baltimore, committed suicide by taking a large dose of corrosive chloride of mercury. The case fell into the hands of Dr. Thomas H. Buckler, who employed, unavailingly, all the known antidotes for this destructive agent, and had the misfortune to see his patient die in great agony. The failure of art to relieve made a strong impression upon Dr. Buckler, and he forthwith instituted experiments with the view of ascertaining by observation the efficacy and value of the various articles used or proposed to counteract the poisonous effects of the mercurial salts.

In the course of these experiments upon pigs and dogs, it occurred to him to magnify the *galvanic test* into an antidote—for, said he, if the corrosive chloride in solution, being placed on a bright gold surface, and touched with an iron point which is also brought in contact with the gold, undergoes decomposition, there is no reason why gold and iron in the form of powder, as exposing great surface, should not also separate chlorine and mercury in combination in the living stomach. Besides, the elements are instantly appropriated by the antidotal agents, “the mercury attaching itself to the negative electrode, namely, the gold, while the chlorine unites with the iron of the positive electrode to form chloride of iron; and thus, for a highly dynamic substance, we substitute a comparatively inert amalgam of gold and a harmless chloride of iron.”

Accordingly into the stomach of pigs and dogs he introduced poisonous doses of the corrosive chloride of mercury, taking care to control the oesophagus; and then, after various intervals, he passed an estimated quantity of gold dust and iron filings into the stomach of a portion of the animals. All the poisoned animals which had not received the antidote became the victims of the experiment; and of the others, those only died which had presented very severe symptoms before the administration of the remedy.

These results were published by Dr. Buckler in the *Baltimore Medical and Surgical Journal* in 1843, with a recommendation, by the author, of the *new antidote* which he proposed. But the suggestion seemed to have received no attention whatever, until, in the last year, a case of corrosive sublimate poisoning occurred to us, in the which we essayed for the first time gold dust and iron filings upon the human subject.

We had had the good fortune to witness a repetition of Dr. Buckler's experiments, and were familiar with his views in respect of the agency at work; so that we only awaited a fitting opportunity for testing the value of our friend's proposition.

On the 14th of May last, a gentleman of this city, being disturbed in mind, procured two drachms (3 ij) of corrosive sublimate from an apothecary, assigning as a reason his intention of destroying rats; mixed two-thirds of the salt with whiskey and water and swallowed the whole at a draught, leaving no dregs in the tumbler. In about ten minutes his wife, hearing efforts at vomiting in her chamber, proceeded thither, and found her husband sitting up in violent and agonizing emesis. A word and the fatal paper satisfied her as to the danger of the sufferer; whereupon she despatched a messenger for medical aid; but administered the whole milk and white of egg, having in a previous marriage been the observant wife of a physician.

In five minutes—it so happened—we were at the bedside, and the galvanic antidote being present in our mind, we sent in haste for two drachms of iron by hydrogen, and a book of gold-leaf. While waiting for the arrival of the articles we encouraged perseverance in the use of albumen and milk, but the patient continued to vomit freely, violently, and unintermittingly. Every thing swallowed was rejected as soon as it approached the stomach, and then, after sturdy efforts, small quantities of greenish mucus, streaked

with blood, were discharged. The face was much congested, the body cold, and the whole surface bedewed with sweat.

In less than ten minutes (in all somewhat short of twenty-five minutes from the ingestion of the sublimate) we had prepared a bolus by dusting the surface of a leaf of gold with the iron, over this another leaf, then iron, and so on, alternately the two metals until about one-half of the gold-leaf, had been expended, and the mass was rolled into a ball.

Before swallowing this, however, we administered warm water to effect the removal of mucus, albumen, and milk, should any of these matters be in the stomach, as they must defend the sublimate from the action of the antidote by preventing contact. Instant emesis followed.

The bolus was readily taken into the stomach aided by a little water, for the poisoned man regretted his act and wished to escape from death. For five minutes there was a calm, during which we made another bolus with the remainder of the gold-leaf and iron.

Vomiting now recurred, but with less violence, and the matters ejected were tinged with yellow or light brown, and contained particles of gold-leaf.

Presently another moment of quiet occurred, which was the signal for the administration of the second bolus. Vomiting now ceased entirely, although at intervals for an hour a slight tendency towards emesis was observable—but the frantic, tremulous anxiety, had given place to confidence and composure—the man had assumed a hopeful appearance, and we were of opinion that the first—the greatest danger—was past.

On the next day moderately severe pyalism manifested itself; but the convalescence was rapid, and the cure was complete in about eight days.

The after-treatment, when vomiting was arrested, was very simple, consisting of hydrocyanic acid in mucilage with small doses of morphia; mucilaginous drinks, as of gum arabic, or quince seed, were directed; and beef-tea and arrowroot were the essential articles of diet for some days. Rochelle salt dissolved in soda water was given on the first days, and counter-irritation over the epigastrium practised from the beginning, and continued until all signs of gastric disturbance had disappeared. And, to conclude the statement, the mouth symptoms were met by gargles of tinct. perchloride of iron largely diluted with water, alum in infusion of sage, and lastly, flax-seed tea acidulated with lemon.

We would not insist upon the superior efficacy of gold-leaf and of iron by hydrogen over gold dust and fresh iron filings—although in the case reported the virtue of the former was apparent to and acknowledged by all the witnesses—for we have still a preference for the latter, on account of the freshness of the metallic surfaces. But in the hurry of the moment the first mentioned may be easily obtained in a state of preparation excepting on Sundays, and then even a dentist would furnish gold-foil No. 4 or lighter, which would supply the place of gold-leaf. If the conveniences were at hand, or, if we were near a pharmacist's, we would prefer to grind gold-foil with fresh iron filings in a mortar, and exhibit the coarse powder so produced with a little water; for the heavier particles would more quickly find their way to the mucous coating of the depending portion, while enough of the finer particles would distribute themselves throughout the stomach to accomplish the destruction of the corrosive chloride not in contact with the mucous membrane.—*American Journal of Med. Sciences, April, 1863, p. 339.*

131.—ON THE TREATMENT OF SNAKE-BITE.

[The following plan of treatment of snake-bite is abstracted and condensed by Dr. Moriarty, of Limerick, from an article in the "Warwick Mail," of Sydney, Australia, by Dr. Berneastle. Dr. M. considers that the same plan probably be of equal use in cases of bite by rabid dogs.]
plan of treatment may be stated as follows:—1st. The wound if recent

should be well sucked. 2ndly. When possible, ligature should be applied. 3rdly. The wound and parts around the wound should be excised and freely bathed, so as to encourage the bleeding. 4thly. Caustic or ammonia may be afterwards applied, the selection to depend on the nature of the bite. 5thly. Stimulants (whiskey) to be liberally given. 6thly. Half a teaspoonful of strong ammonia, and double this quantity of the tincture of asafetida to be taken every quarter of an hour in a wine-glassful of water. 7thly. When the bleeding has ceased the wound should be poulticed with ipecacuanha powder. 8thly. If convenient or suitable the actual cautery may be used. 9thly. In order to point out the value of stimulants, we may remark that old Indians in Canada will with impunity suffer themselves to be bitten by a rattlesnake, the most obnoxious of all the ophidia, after drinking a pint of whiskey. 10th. The good of all or of any of these remedies will in a great degree depend on their immediate application. These remedies may be also usefully applied to the dangerous stings or bites of tarantulas, scorpions, centipedes, &c., &c.—*Medical Times and Gazette*, July 11, 1863, p. 54.

132.—CASE OF POISONOUS SNAKE-BITE.

By DR. WILLIAM SHAW, Windsor, New South Wales.

[The patient had been bitten on the arm by a black snake, one of the most deadly of the Australian species. It was nearly two hours before he was seen by Dr. Shaw.]

Upon my arrival, I found him in a very low condition; his countenance very pale and listless; body bedewed with a cold perspiration; the pulse small, rapid, and fluttering, with great drowsiness and disinclination to speak or to answer questions. A ligature had been applied by a neighbour above the wound shortly after the injury. I seized the bitten part with forceps, and cleanly excised it and around it to the extent in size of a shilling. Pretty free bleeding occurred, which I further encouraged by getting the lad's father to suck the wound with his mouth. The sucking being continued for about ten minutes, I then applied a strong solution of ammonia to the wound, and at the same time I gave a draught, consisting of two drachms of aromatic spirit of ammonia and the same quantity of tincture of asafetida in a little water, and this I ordered to be repeated every hour, with strong coffee *ad libitum*. Soon after these measures were adopted, and especially after the administration of the draught, he appeared to revive, and continued to do so well, that in three hours from the time of my visit I considered him completely out of danger.

In the treatment of this case, no originality is claimed, with the exception of the administration of tincture of asafetida, and for that hint I am indebted to Dr. Francis Campbell, of Torban Creek Lunatic Asylum, N. S. W. Dr. C. appears to look upon the tincture of asafetida as almost a specific in snake-bites, and certainly the result of cases he adduces which were treated by that medicine would almost warrant one to endorse his opinion. I am inclined to believe, however, that it owes its properties in such cases more to its action as a stimulant, and perhaps also in part to its ill taste and odour, rousing to a certain extent the depressed nervous energy of the sufferers from that species of poison.

Dr. Berncastle, of Sydney, another gentleman who has paid particular attention to snake-bites, considers stimulants the great *forte* in the treatment of such cases; and although he advocates the propriety of local treatment, still he appears to say that it is of less importance than the administration of large doses of some diffusible stimulant, he giving the preference to whiskey.

The rational course of treatment, then appears to be to get rid of the poison by excision or free scarification of the wounded part, and by propping up the depressed powers of life by diffusible stimulants of any kind till the shock—always an attendant of snake-bites—is recovered from.—*Lancet*, Sept. 5, 1863, p. 295.

133.—GALVANISM IN POISONING BY OPIUM.

By Dr. JOHN W. OGLE, London.

[The following case occurred at St. George's Hospital, in 1851.]

The patient, a child, aged seven months, had a quantity of laudanum given to it (it was said that a spoonful had been given, but it could not be accurately made out what sized spoon had been used) at half-past nine a. m. It was brought to St. George's Hospital at twelve o'clock at noon in a comatose condition, with perfectly livid lips, pallid face, almost icy coldness of all the extremities, and very contracted pupils. There was, however, no stertorous breathing. The fontanelles were in a natural state. The child was put into a series of warm baths, and very cold water was repeatedly dashed upon the whole of its naked body. This alternate use of hot water and cold water was continued for some time, with the effect of rousing the child and making it cry, but it very quickly relapsed after each effort into its former condition, until the "douching" was repeated. At times the child would take the breast during this comatose state, but only for a few minutes. After persevering in the use of the hot bath and the cold affusions for above an hour, no decided advantage being apparently gained, but on the contrary, this mode of treatment losing its power in rousing the patient, it was determined to try the use of galvanism. This was begun and persevered in with most decided benefit. By its means the crying was kept up at intervals, and the general circulation roused from time to time. The good result continued, and the galvanism was persisted in until half-past six o'clock in the evening, when, to the delight of the mother, who had, against the advice of all about, watched with the utmost anxiety the seemingly painful use of the affusion and galvanism, the patient opened its eyes in a languid, but otherwise natural manner, and gradually revived. After taking food, and looking about it for a time, it fell into a deep, but quiet and healthful sleep, in which it long remained. It was fully restored to its ordinary state after a time, and removed home by the mother.

The galvanism was kept up remittingly by relays of medical students, who very promptly lent themselves to the work.

It was observed that galvanism across the cheeks caused most crying and arousing of the child's energies; that along the back most writhing and contortions. When applied across the thorax, from side to side, it appeared that most sobbing with crying was produced, and when along the line of the diaphragm much sobbing, but not crying.

It was noticed, during the comatose condition of the child, that frequently one-half of the lips and mouth would become much paler than the remainder, which was very dark and livid, the darkness gradually passing off, like the fading away of a shadow.—*Medical Times and Gazette*, Oct. 3, 1863, p. 368.

134.—POISONING BY CYANIDE OF POTASSIUM—DANGERS TO PHOTOGRAPHERS.

Dr. DAYANNE directs attention to the dangers to which those who are engaged in the art of photography are exposed. They use constantly, he says, two poisons of the most active kind—namely, cyanide of potassium and bichloride of mercury. Their hands are constantly in contact with strong solutions of these poisons; and often, in spite of warnings repeated over and over again, they run absurd risks. The author gives an account of a case in which a gentleman, who had stained his hand with nitrate of silver, endeavoured to remove the stain by rubbing over it cyanide of potassium freely. In the act, he slid under the nail of one of his fingers a small portion of the cyanide salt. At first he did not notice what had happened, but in a little time he felt a sharp pain in the part, followed, after a few minutes, by an intense vertigo, so that all objects appeared to be moving around him. To

relieve himself promptly, he conceived the unfortunate idea of employing vinegar; the cyanide was quickly decomposed, and hydrocyanic acid was produced absolutely. The vertigo now increased, accompanied by shiverings, pallor of the face, loss of sight, and great exhaustion. The power of speech was lost, but the intelligence was preserved. The extremities were cold, and as the sight returned there was double vision. The symptoms did not pass away for ten hours.

The treatment adopted consisted of cold and friction on the spinal column, inhalation of ammonia vapour, and the administration of strong infusion of black coffee.—*Canstatt's Jahresh.*

[Dr. B. W. RICHARDSON says:]

We can confirm, to a considerable extent, many of the facts related by Dr. Davanne. A photographer, who was under our care a few months since, after using a solution of cyanide of potassium at a time when his hands were "chapped," was seized with vertigo, nausea, shivering, great prostration, double vision, and muscular tremor. These symptoms were repeated several times before their cause was discovered. On consulting us, we traced the symptoms distinctly to the local application of the solution of the cyanide. On removal of the cause, the patient lost at once all the acute and immediately dangerous indications; but he was left for some weeks very feeble, anæmic, and dyspeptic, and with the blood abnormally fluid.—*British and Foreign Medico-Chirurgical Review*, October, 1863, p. 535.

135.—ON NITRATE OF SILVER.

By JOHN HIGGINBOTTOM, Esq., Nottingham.

I think it very important to call the attention of surgeons to the superiority of the ordinary nitrate of silver over the new preparations which have been now some time in use. The new preparation—"lunar caustic points, perfectly tough"—is worthless as an application in surgical cases. It is not nearly so soluble as the old brittle stick of nitrate of silver, and has scarcely any power in checking and subduing inflammation, and useless in the cure of wounds. The same remarks apply to the cake and crystals of the nitrate of silver used for photographic purposes; which, although they may be more chemically pure, are much less efficacious for surgical purposes than the old preparation.

It is a remedy to which I called the attention of medical practitioners thirty-seven years since in an "Essay on the Use of the Nitrate of Silver." Every succeeding year it has maintained its value in my estimation; but I fear that if the new preparations continue to be used, it will undeservedly fall into discredit.

The grounds upon which I have formed my opinion are these: I have used the new preparations for some time; and in cases where from past experience I looked forward with a certainty to successful results, I have been much disappointed, and the cause was to me then inexplicable. To give a case: A medical friend had a severe puncture. I applied the nitrate of silver with a conviction that he would have no further trouble with it. To my surprise, the application took little or no effect; surrounding inflammation followed, also of the absorbents. Further applications were made with the same nitrate of silver; but the inflammation continued its usual course, keeping my patient several days in bed, and afterwards it very slowly subsided. Another case: A patient had a severe contused wound on the middle finger of the left hand from a fall. The nitrate of silver was well applied. I expected it would heal under an adherent eschar. That it did not do so surprised and disappointed me. The wound remained some weeks in a painful and inflamed state; and when at last it healed, it left an irritable induration, with swelling. This I treated again and again with the nitrate of silver without much benefit. These and other cases I could relate (one especially, a formidable attack of erysipelas on the leg, which formerly I found yielded to the application,

entirely failed), led me to think there must be something wrong in the preparation of the nitrate of silver; and it occurred to me that the new preparation did not produce so much pain as the old did immediately on its application. I procured some of the old-fashioned stick of nitrate of silver. The first application on the case above mentioned did more in removing the irritable, inflamed swelling in four days than all former applications.

From the experience I have had daily of the use of the nitrate of silver for so many years, I am convinced that no remedy of equal power in subduing external inflammation and healing wounds has been discovered, if properly applied, although many remedies have been recommended in lieu of it.

In cases of extensive external inflammation I would use a solution of four scruples of the old-fashioned stick of nitrate of silver to four drachms of distilled water; in common cases of inflammation and wounds, the ordinary stick, as particularly directed in my last work—"Additional Observations on the Use of the Nitrate of Silver."—*Lancet*, July 4, 1863, p. 14.

136.—FORMULA FOR A SOLUTION OF BROMINE.

By Dr. J. LAWRENCE SMITH, Professor of Chemistry in the Medical Department of the University of Louisville.

The frequent demand for bromine from the Louisville Chemical Works, which are under my direction, induced me to inquire for what purpose it was used, and I learned that it was being employed as a therapeutic agent, especially in the form of vapour mixed with air as a purifier of the atmosphere of hospitals, where erysipelas, gangrene, small-pox, &c., existed, and also internally in certain affections of the throat. Knowing full well the inconvenience of the use of the substance in the form called for, I at once undertook to compound a solution which would meet the ends required, and be more convenient for any therapeutical use to which uncombined bromine might be applied. From the slight solubility of bromine, any attempts to dissolve it in water would give too dilute and bulky a solution, the natural suggestion, therefore, was to use but little water and facilitate its solubility by adding bromide of potassium; at first the following proportions were used: 1 troy ounce of bromine, 120 grains bromide of potassium, and 1 fluid-ounce of distilled water; the formula left a small quantity of bromine undissolved, and the solution was too concentrated. After varying the proportions in different ways I have settled on the following as the most convenient formula:

R. Bromine, 1 troy ounce; bromide of potassium, 160 grains; distilled water, q. s. to make four fluid-ounces of the whole mixture.

Dissolve the bromide of potassium in about two fluid-ounces of water in an eight-ounce bottle, then add the bromine, agitate gently until the solution is complete, then add water enough to bring the whole to four fluid-ounces.

This mixture forms a very dark red solution, evolving strong fumes of bromine, and readily soluble in any additional quantity of water.

I have given this formula as one that will, doubtless, recommend itself to those of the medical profession engaged in using bromine, and it is already being used by the medical profession of this place.—*American Journal of Medical Science*, April, 1863, p. 385.

137.—ON IODINE AS A DEODORISER AND DISINFECTANT.

By Dr. B. W. RICHARDSON, M. A., London.

[The following is from a report of papers read at the late meeting of the British Association at Newcastle.]

Dr. RICHARDSON made a short observation in sub-Section D on Thursday, August 27, "On the Application of Iodine for Disinfecting and Deodorising Purposes." The iodine should be placed in a common chip-box, such as is

employed by pharmacutists, the lid of the box being replaced by a covering of "lino," or the iodine may be placed in the ornamental vases on the mantel-shelf of a room. The smell of iodine could thus be communicated to the air of an apartment, and air so purified was not only fresh and agreeable to the sense of smell, but any organic matters present in it were destroyed. In extreme cases the iodine should be placed on a dish or plate, and the heat of a candle being applied beneath, the iodine was volatilised, and a room was quickly purified. Dr. Richardson said that in cases of small-pox a knowledge of the facts he had named was most valuable. In rooms occupied by sufferers from this painful disease, organic matters floated largely in the air, rendering the air most offensive. He (Dr. Richardson) had succeeded, in all cases, in rendering such air inodorous by the volatilisation of iodine. He had also observed the singular fact, that when the air was greatly charged with organic materials, the smell of the iodine was for a long time imperceptible, so that in truth the iodine method of purification was also a ready and practical test of the purity of an air. Dr. Richardson thought the iodine plan was quite as effective as the liberation of free ozone,—it was, indeed, in principle the same, and was so simple that every person could employ it.

Dr. Wood said that the iodine produced the effects named by Dr. Richardson in one of two ways,—it either destroyed the organic compounds by combining with hydrogen, and forming hydriodic acid, or it might be that in the chemical changes that occurred ozone was formed. In either case there was unquestionably a rapid and effective process of oxidation, the results being the same as occurred with chlorine to a considerable extent, and in a manner more easy and manageable.—*Medical Times and Gazette*, Sept. 26, 1863, p. 334.

138.—ON THE USE OF COLLODION WITH GLYCERINE IN ERYSIPELAS.

The substitution of a glycerinated collodion for the common collodion will completely prevent the cracking of the skin and other unpleasant consequences which often occur when the latter is used as a dressing in erysipelas of the face.

The manner in which it should be prepared, according to Dr. W. Abbotts Smith's recent small work, "On Glycerine, and its Uses in Medicine, Surgery, and Pharmacy," p. 30, is by adding two parts of glycerine to one hundred parts of common collodion. The addition of this small proportion of glycerine is sufficient to impart considerable suppleness to the collodion, and to prevent its dragging upon and cracking the delicate tissues to which it is applied.

[Equal parts of collodion and castor oil are recommended by another writer.]—*Lancet*, October 31, 1863, p. 527.

139.—"RED VULCANITE" IN DENTISTRY.

By Dr. EDWARD WELLS, Reading.

(Read before the Reading Pathological Society.)

Rev. Mr. C. being, as he considered, in perfect health, went about six weeks back to a dentist in London, who fitted him with a frame containing upper and lower teeth. Immediately upon wearing them, he found a metallic taste in his mouth, which was very disagreeable. By degrees his health began to fail; he became weak and nervous, lost his appetite, and began to emaciate; had flatulency, foetid breath, and looseness of bowels.

After wearing the teeth for six weeks, he became convinced that they were the cause of his ailments; that he was, in fact, being slowly poisoned.

This led him to send for me. I found him suffering from nervous prostration. Pulse 100, weak; tongue coated with a white film; the urine was whey-like, having an extremely foetid odour, faintly acid; specific gravity 1009, slightly albuminous on boiling.

On examining the teeth, which are exhibited, the basis is found to be what is termed "red vulcanite," a composition, as I learn, of vermilion, sulphur, and india-rubber, vulcanised. This composition, therefore, contains the red sulphuret of mercury, probably to some amount, as the colour is entirely due to that salt.

Now, as the "red vulcanite" is largely used in dentistry, it is possible that it may not so rapidly affect many persons as it did my patient; for Mr. C. is peculiarly sensitive to the action of mercury. When ill, he is never able to take the least mercurial medicine without experiencing its toxic effects. This is probably due to his being predisposed to an affection of the kidneys. He was, therefore, peculiarly susceptible of the poisonous effects of the vermilion contained in the basis; and, from the condition of the urine, I think there is no doubt he was suffering from the injurious impression made by the mercury on the urinary organs. It is not improbable that there may have already existed some disease of the kidney in a latent form, which has been called into action by the absorption of the mineral. Such an explanation of his symptoms, however, would not render the use of such a basis—in his case, at least, as well as many others—a whit the less objectionable.

In the short time that has elapsed since leaving off the teeth, he has become gradually better and stronger. The urine is much less foetid; the appetite has improved; and the tongue is cleaner. The improvement has been sufficient to leave him still fully convinced that the teeth were the cause of his illness.—*British Medical Journal*, September 5, 1863, p. 266.

140.—THE ACTUAL CAUTERY.

M. NELATON proposes and practises a new method of cauterisation, using a fine jet of flame, produced by the combustion of ordinary gas, for the purpose. The actual cautery, we are told, is replaced by this small flame, which is projected from a thread-like tube, is about fifteen millimètres long and two or three in diameter, and may be handled as readily as a pen or a stick of lunar caustic. The actual cautery rapidly cools down, is larger than required, and creates much vapour and smoke when applied, and so conceals from view what is going on, and, moreover, is a formidable and horrid looking affair. The flame, on the contrary, burns calmly and equally, and may be applied exactly where it is wanted. No hemorrhage follows the flame, the coagulation taking place in the deep vessels of the part. The deep effect of the flame is remarkable. A minute application to muscle will carbonise it to the depth of half a centimètre, and disorganise as much more of the tissue beneath. Bones are rapidly destroyed; in two or three minutes the two layers, the compact tissue, and the diploë of the tibia were reduced to an earthy mass. An open artery attacked by the flame is folded up on itself. In this way, according to M. Nélaton, we can produce in a very short time, and with the simplest apparatus, over which we have complete control, much greater effects than can be produced by the most powerful cauteries of classic surgery, not even excepting those resulting from the use of the electric battery. An elastic bag containing the gas is employed, which bag is subjected to moderate pressure.—*British Medical Journal*, August 29, 1863, p. 246.

141.—TARTAR EMETIC PLAISTER.

M. Mialhe gives the following formula for a plaister, which produces a much more manageable eruption than that in ordinary use:—White pitch, 40; black resin, 20; yellow-wax, 20; turpentine, 5; olive oil, 5; and tartar

emetic, 10 parts. To be mixed into a plaister mass, and spread, while hot, on strips of calico, like ordinary strapping. This revulsive is of great use in chronic bronchitis and phthisis.—*Medical Times and Gazette*, July 11, 1863, p. 50.

142.—SOME OBSERVATIONS ON THE IODIC TEST FOR MORPHIA.

By A. DUPRE, Ph. D., F. C. S.

Having frequently observed that students failed to obtain the blue iodide of starch by the action of iodic acid on morphia, even when using quantities of the alkaloid much more considerable than are generally alleged to yield the result, I have been induced to examine into the circumstances most favourable for the successful application of this test.

The iodic acid used in the following experiments was prepared by dissolving one part of the crystallized acid in fifteen parts of water. When less strong, the solution does not react readily with dilute solutions of morphia; while, if much more concentrated, it interferes with the delicacy of the reaction, iodic acid having to a certain extent the property of decolorising the blue iodide of starch. The starch solution was made by boiling five grains of starch in 2,000 grains of water. It should always be freshly prepared. As starch does not show the blue colour in presence of an excess of iodine, but then only assumes a dirty green, care should be taken to add a sufficient quantity of it when working with strong solutions of morphia; on the other hand a great excess of starch destroys the colour, which should be remembered when working with very dilute solutions or very small quantities of morphia.

Morphia or its salts in the solid state.—Morphia, or any of its salts, when moistened with iodic acid, instantly assumes a brown colour, and the smell of iodine is developed; the addition of starch produces the blue iodide of starch. Quantities as low as $\frac{1}{200}$ th of a grain give this reaction readily; smaller quantities do not give the reaction satisfactorily in this manner; and if less than $\frac{1}{200}$ th grain be taken, the reaction becomes altogether uncertain; it is somewhat more delicate if the starch be added before the iodic acid. The test may, however, be made much more delicate in the following manner: A drop of starch should be added to the morphia, and the whole carefully evaporated to dryness. The dry residue left, after cooling, should be moistened with iodic acid, when it will assume a dark-blue colour, which is still well marked, even though not more than $\frac{1}{10000}$ th grain of morphia be present.

Solutions of Morphia.—The more concentrated solutions were, of course, made with salts of morphia; they should be neutral, and any excess of hydrochloric acid should be especially avoided, since this is decomposed by the iodic acid with liberation of chlorine, which entirely prevents the formation of the blue iodide of starch. A solution of morphia, or of any of its salts, has also the property of decolorising the blue starch compound, or of preventing its formation. In strong solutions of the alkaloid care must be taken on this account to add a sufficient amount of iodic acid, avoiding at the same time any very great excess.

Solutions of morphia, when mixed with iodic acid, acquire a yellow tint, the depth of which and the time in which it appears depend on the strength of the two solutions. When they are concentrated, the colour appears immediately, and is of a deep reddish-yellow; when diluted, some time elapses before its production, and it is then a yellow tint. This yellow coloration is still perceptible if the solution contains no more than 1 part of morphia to 20,000 parts of water. The point at which the colour of a liquid ceases to be visible of course depends on the quantity of fluid used, as also somewhat on the shape of the vessel in which it is contained; the above statement refers to quantities of twenty or thirty grains of liquid put into ordinary narrow test-tubes. Starch added to this yellow mixture produces the well-known blue colour, if the morphia be not dissolved in more than from 400 to 600 parts of

water; in more dilute solutions the test becomes uncertain, though it often succeeds if only $\frac{1}{10000}$ th or $\frac{1}{10000}$ th part of morphia be present. Below this proportion the liquid, although still strongly yellow, fails entirely to answer to the test; thus showing either that the coloration is not due to liberated iodine, or that the morphia and iodic acid possess a considerable preventive power as regards the action of iodine on starch, although they may not enter into any definite combination with it. Ordinary reducing agents, even when so diluted that the yellow colour due to the liberated iodine is no longer perceptible, still give a strong blue on addition of starch, provided no great excess of iodic acid has been used.

In 1861 Lefort recommended the addition of ammonia, instead of starch, to the mixture of morphia and iodic acid. The colour is thereby considerably deepened, and rendered a dark brown in strong, a light brown changing to pink in dilute, solutions. The yellow colour produced by most other agents, reducing the iodic acid is entirely discharged by ammonia, and thus are removed many of the objections that may be urged against the iodic acid test, as hitherto employed. This test is also far more delicate when applied to solutions than the starch test above described, as it will render the coloration visible in solutions containing no more than $\frac{1}{300000}$ th part of morphia. A process will, however, presently be given by which the starch test is rendered almost equally delicate. In applying this test, the iodic acid must be added first, and in dilute solutions the mixture should be allowed to stand for about ten minutes before the ammonia is put in, as otherwise the coloration may be entirely prevented. Lefort recommends to moisten strips of unsized paper repeatedly with the morphia solution, carefully drying them each time, and then to apply the test to the paper thus prepared.

It has been stated above that starch fails to give the blue reaction with solutions of morphia containing less than $\frac{1}{1000}$ th part. It may, however, be readily made to do so in even much more diluted solutions, by the careful addition of ammonia, taking care to avoid the slightest excess. In very dilute solutions it is not easy to add the proper amount of ammonia, and it is therefore better to proceed in the following manner. After the mixture of morphia, iodic acid, and starch, has been allowed to stand for ten minutes, a very dilute solution of ammonia is carefully poured upon the top of it, which may be easily done by means of a small pipette. After a longer or shorter time, according to the strength of the morphia solution, two coloured rings make their appearance at the place where the two layers are in contact. The lower one, in the acid layer, is blue; the upper one, in the ammonia, is brown. The rings are usually in contact, and may be clearly perceived in solutions containing not more than the $\frac{1}{300000}$ th part of morphia. The brown ring alone may be seen in still more dilute solutions. If the two layers are finally mixed, the whole assumes the brown or pink colour of Lefort's test. If the morphia solution is very diluted, not more than one drop each of solutions of starch and of iodic acid should be added to about twenty drops of the suspected liquid.

Delicacy of the reaction.—When the test is applied to the dry morphia, $\frac{1}{100000}$ th of a grain will give the reaction. When applied to solutions, the test is not nearly so delicate, and $\frac{1}{10000}$ th of a grain may be put down as the smallest quantity that will give the reaction satisfactorily.

Objections.—As the objections to the iodic acid and starch test, as usually employed, are given in all books on poisons, it is unnecessary here to allude to them. As regards the ammonia test, morphia seems to be the only substance that gives rise to this reaction. Several precautions are, nevertheless, necessary, either when using ammonia alone, like Lefort, or when using the starch and ammonia in the manner described in this paper. Extremely dilute solutions of a sulphite, sulphocyanide, or other substance reducing the iodic acid, will also give rise to the blue ring; but neither is the brown ring present nor will the whole assume a brown colour on mixing the two layers. Solutions of aniline, when mixed with iodic acid, assume a violet colour, which, on addition of ammonia, is changed to brown. In very dilute solutions this might be mistaken for the reaction of morphia. No iodine is,

however, liberated, and starch consequently fails to give any reaction. In moderately strong solutions the deep-violet colour produced is in itself sufficient to guard against any mistake. If dilute solutions of aniline are mixed with iodic acid and starch, and then covered with a layer of ammonia, as above described in testing for morphia, a brown ring is produced in the ammonia. The absence, however, of the blue ring, and the slight pink colour of the lower layer, render the reaction sufficiently distinct from that of morphia. It will be seen, from the above, that a mixture of aniline with some other reducing agent would give very similar reactions with iodic acid as does morphia; although the aniline, to a considerable extent, neutralises the effect of the reducing agent, by reabsorbing the liberated iodine. The test should therefore be employed only after means have been used to obtain the morphia in a tolerable state of purity.

The iodic acid cannot be replaced in these reactions by a mixture of an iodate with sulphuric acid, since this gives rise to colour reactions with a number of other alkaloids.—*Guy's Hospital Reports*, 1863, p. 323.

143.—AN INQUIRY INTO THE ACTION AND USES OF ATROPIA.

By DR. ALEXANDER FLEMING, Physician to the Queen's Hospital, and Consulting Physician to the Midland Eye and Ear Hospital, Birmingham.

Physiological Action.—Local Action.—When a solution of atropia, 1 grain of the alkaloid to 10 drachms of the menstruum, of the same strength as that which I employ for internal use, but made without spirit, is well rubbed into the skin, no change results in the sense of touch,—the sensibility to common impressions, or to temperature. The colour of the part is not altered, nor is its contractility—as evidenced by the goose-skin produced by the galvanomagnetic current and wire brush of Duchenne—either increased or impaired. I have determined these points by repeated experiments. Further, from several trials which I have made on worms and the small intestines of rabbits, I conclude that atropia is not a local paralyzer, as has been commonly inferred, either from its supposed mode of action on the iris, or from its curative influence in spasmodic diseases. The alkaloid appeared rather to quicken the contraction of the parts to which it was applied.

Painted on the mucous membrane of the mouth and throat, it dries the part, and—chiefly as secondary effects—impairs both its feeling and movement, perverting the taste, and causing much difficulty of swallowing. These symptoms are much relieved by moistening the parts with water.

Applied directly to the smaller arteries, atropia constricts them (Jones); and this effect may continue for many hours.

On the Eyeball.—The same solution of atropia, dropped on the conjunctiva, in a few minutes widens the pupil, and after a much longer interval impairs the sight and lustre of the eye to which it is applied. The eye is misty, and cannot read print, easily seen by its healthy fellow. This has been generally referred to diminished sensibility of the retina; but my observations (made in 1856) prove beyond doubt that it is altogether due to the width of the pupil, and the loss of power in the eye to adapt itself to near vision. That it is in part due to the large pupil admitting too many and too divergent rays is shown by the vision being improved in a dusky light, and in looking through a hole—smaller than the dilated pupil—in a black card held close to the eye. But it is especially due to the inability of the eye to adjust itself to near vision. The defective sight is more marked the closer the object, and diminishes with distance. As the influence of the atropia is wearing off, while yet the difference between the two eyes is decided with a near object, scarcely any difference is perceived with a distant one. The type of a book appears smaller to the atropised eye than to its fellow at the same distance. Hence vision with both eyes conjointly is confused, and, for reading, the dilated eye must be covered.

The solution of strength indicated above (1 grain to 10 drachms) serves

well for ordinary use to dilate the pupil. To obtain the deeper effects upon the eye a stronger solution of 3 grains to 10 drachms should be employed. This reduces the iris to a mere line, and completely impairs the sight. The blindness continues from one to four days, and subsides some time before the pupil regains its normal size. The eye thus atropised bears the sun's rays better than its fellow, which seems to show that the iris itself is, in part at least, the seat of the incident impressions which contract the pupil and protect the retina. When this stronger solution is applied carefully to the outer side of the eye, the adjoining or outer part of the circle of the iris dilates some time before that of the inner side. This fact points to a strictly local action. Atropia does not redden the conjunctiva. It has no action on the iris of the dead eye.

Among other observations which I have made on the atropised eye, I found that in adapting the telescope to it the instrument requires to be lengthened, as compared with the other eye; but the focus having been adjusted, vision is perfectly clear, although the eye, without the help of the telescope, be absolutely blind. Indeed, several of those who made trials with the telescope maintained that they saw better with the atropised eye—a fact deserving of the astronomer's attention. In using the microscope with the atropised eye, the object has to be removed a little farther from the instrument; but the focus having been adjusted, vision is as good as with the healthy eye.

I was able to make the smaller image of the atropised eye, as compared with the other, very manifest by means of the reflecting stereoscope.

The atropised eye is altered as if for distant vision. The pupil dilates, and at the same time I believe that the lens recedes and diminishes the distance between it and the retina. The following is my explanation of the mode in which these results are produced.

The erectile structure of the iris has been of late too much overlooked in discussing its movements—the singular softness of which appears to imply something more than muscular contraction.

The iris may be congested and the pupil contracted by relaxation of its arteries letting more blood into it, or by compression of its veins impeding the flow from it; and it may be emptied of blood and relaxed, either by contraction of its arteries or by relaxation of its veins, or both conditions may co-operate. The ciliary processes have a mixed erectile and muscular structure, not unlike that of the iris, and it is a most feasible supposition that the lens is advanced by their turgescence, conjoined with contraction of the ciliary muscle, and recedes on their relaxation—the former being an active, and the latter the quiescent condition of the parts.

The sympathetic nerve supplies at the same time contractile power to the arteries and to the radiating fibres of the iris; and it seems most probable that in ordinary dilatation of the pupil the same reflex influence stimulates conjointly the contractile arteries entering the iris and the radiating fibres. These being always associated in action, we can understand that an agent like atropia, directly contracting the arteries entering the iris, will draw into movement by sympathy its radiating fibres, the contraction of which is already made easy by the emptiness of the erectile tissue.

For near vision in normal accommodation I believe that the *pupil contracts and the lens advances*. The veins of the iris and ciliary body are, I believe—as formerly suggested by Wallace, Cooper, and Smee—at the same time compressed by the ciliary muscle causing turgescence of their erectile parts. The turgescence of the iris co-operates with the contraction of its circular fibres to close the pupil. The turgescence of the ciliary body must exert pressure on the vitreous humour, which, diffused equally through that fluid, takes effect on the only yielding point—the lens—and pushes it forward, just as a patient is raised by pressure on the side of a water bed. The ciliary and iridal muscles concerned in these associate movements receive their nervous supply from the same source or third pair.

When atropia is applied to the eye I believe that it reaches, *first*, by imbibition, the arteries entering the iris—constricts them—impedes the flow of blood to, and relaxes its tissue. The constriction of the arteries of the iris, with its

consequent relaxation, draws into action, *by functional sympathy* (and without the intervention, by reflex action of the brain or cord) the radiating fibres, and dilates the pupil. Sinking deeper into the eye, the alkaloid reaches, *secondly*, the ciliary processes, and relaxes their erectile structure and causes distant vision. The relaxation of the ciliary body must cause the advance and expansion of the vitreous humour around the lens; while the lens itself recedes, to occupy the place of the displaced fluid. The ciliary muscle is considered by some anatomists to have both circular and radial fibres, like the iris, and animated, in like manner, by the third and sympathetic nerves.

That the lens recedes and approaches the retina in the atropised eye, is proved by the vision being clearer with distant than with near objects, and by its furnishing a smaller image than the healthy eye of an object at the same distance from both.

According to the view here stated, the normal accommodation of the eye to near and distant vision depends essentially on a change in the position of the lens, brought about in the manner described. The experiments of Cramer and Helmholtz, on the other hand, refer this power to a change in the form of the lens. Near vision is effected, according to them, by an increase in the thickness or convexity, and distant vision by a flattening of the lens. This body certainly does not look as if it could be made thick and thin by muscular action; and as it must be most difficult to make the measurements of its antero-posterior diameter in the living eye, on which this opinion is founded, I would desire to see them verified by others. I say this with sincere respect for these most able oculists. Assuming their observations, however, to be absolutely correct, the change in the form of the lens may be only one part of the phenomena of even normal accommodation; and certainly it is quite compatible with my theory of the mode of action of atropia, in widening the pupil and causing distant vision,—for it must not be forgotten that my explanation applies to both of these changes.

In the dead body, Helmholtz found that the lens has the form—thick and convex—of that adjusted for near sight, which is curious, seeing that near vision is the active state in the living eye.

The remarkable precision of the phenomena produced by atropia in the eye, and the comparatively gradual manner in which they are accomplished, are more easily reconciled with my explanation; and without attaching too much importance to them, some facts in practical medicine which harmonize with it, may now be stated. For many years, I have noted that patients suffering from atonic and exhausting disease, and especially from such as enfeeblement in a marked manner vital turgescence and erectile power, as enteric fever, diabetes, anæmia, Bright's disease, and diphtheria, are disposed to wide pupil and distant vision. There is also good reason to believe that contracted arteries, wide pupil, and far sight or virtual blindness, are the *early* phenomena in the eye of the epileptic paroxysm, of fainting, of excessive loss of blood, and of pure sedative poisoning. Again, those conditions which check the arterial flow to the eye tend to dilate the pupil, such as aneurism in the chest and neck impeding the passage of blood into and through the carotid, a tumour pressing on, or a plug in the vessel. Worms and disease of the belly in children dilate the pupil and impair the sight, probably by reflex action through the sympathetic nerve—exciting the radial fibres of the iris and contracting the cerebral arteries. Hence, also, in all likelihood, the train of anæmic head-symptoms so characteristic of tape-worm.

On the other hand, those conditions which favour arterial plethora or venous congestion of the head tend to contract the pupil—such as dilatation and loss of contractility of the aorta and carotid—giving passage to a larger stream, and checking its force less, than the normal vessel. Aneurism of the innominata closing the subclavian and leaving the carotid free will increase the force of the blood current in the latter, and this will be further augmented if the carotid be diseased, dilated, inelastic, and non-contractile.—*Edinburgh Medical Journal*, March, 1863, p. 777.

144.—ON THE THERAPEUTIC PROPERTIES OF CARBOLIC ACID.

By GRACE CALVERT, Ph. D., F. R. S., Manchester.

Carbolic acid, hydrated oxide of phenyle, or phenic acid, is a white substance, which crystallizes in long prisms, fusible at 93° Fahr., and boiling at 370°. It has a slight tarry and aromatic smell, resembling that of wood creosote, and is freely soluble in alcohol, ether, and glycerine, partially so in glacial acetic acid, and only slightly so in water, of which 100 parts will dissolve only three parts of carbolic acid. It is easily prepared by treating the oils of tar, which distil between 350° and 400°, with caustic lye, removing the caustic lye solution from the neutral oils, and adding hydrochloric acid to the alkaline solution, when the carbolic acid is liberated, and rises to the surface as an oily fluid, from which, by distillation, the above-mentioned therapeutic agent is obtained.

[The following are extracts from a paper read before the Lancashire and Cheshire Branch of the British Medical Association, by Mr. Turner, of Manchester.]

"In cases of relaxation of the mucous surfaces, the solution of carbolic acid in glycerine, applied by means of a brush or sponge, is most beneficial. Thus its use is indicated in polypi of the nostrils, as well as ozæna, and in all putrid discharges from the mouth, throat, nostrils, ears, rectum, and vagina.

"I shall next call your attention to the use of carbolic acid in *diphtheria*, in which disease it is a most valuable remedy used topically to the throat. . . . To apply it I use a sponge mop, which should be used freely, but not saturated, lest a drop should fall into the larynx. The escharotic effect of carbolic acid is confined to the surface to which it is applied, there being no spreading to the contiguous parts, which may happen in the case of nitric acid. The aqueous solution of carbolic acid may be also used as a gargle.

"*Ulcers*.—I apply carbolic acid in different degrees of solution, according to the character of the sore, to carbuncle and ill-conditioned sores.

"*Fistulæ*.—I apply it by means of a wax taper used in lighting gas, or, if the size of the fistula will admit of it, I use a cat-gut or wax bougie, taking care to carry it to the bottom of the fistula. I have never succeeded in anal fistula where there is a communication with the gut. In these cases an operation is still necessary.

"*Hæmorrhoids*.—The action of carbolic acid is mainly to corrugate, and therefore to obliterate, the sac of the pile. It coagulates the contents, which may be squeezed out; and by corrugation it empties the pile, by which the two surfaces are brought into contact, and thus the sac is obliterated."

Mr. Turner, also, in a private note to me, speaks of the use of carbolic acid to fetid ulcers in the following terms:—"It may be advantageously used, as a solution of one part of acid in forty parts of water, in fetid ill-conditioned ulcers. It alters the action of the blood-vessels, causing a purulent instead of a sanious discharge, and destroys almost immediately the offensive smell of the secretion. In ulcers having a communication with carious bone, or even necrosis (where the bone is dead), it has, in its diluted state, a good effect when injected into the sinuses leading to the diseased bones. Where there is mere caries or ulceration of the bone, it effects the healing process, and in necrosis it promotes the exfoliation of the dead portion. In gangrenous and all offensive sores, it removes all disagreeable smell and putrescence, and may render the discharge innocuous to the contiguous living and unaffected tissues. In its diluted state, therefore, it is a great boon to patients labouring under that class of disease."

When Mr. Turner wishes to employ carbolic acid in a less diluted state than the aqueous solution, and yet not in its full strength as a caustic, he prefers the following solution. He mixes two drachms of pure carbolic acid in one drachm of liquor potassæ and half a pint of water.

It is with pleasure that I am able to add that Mr. Oscar Clayton and Mr.

Campbell De Morgan have informed me of several successful applications which they have made of carbolic acid, confirming many of the results of Mr. Turner's, above described.

Dr. Pattison, of St. John's-wood, writes to me as follows:—

"I have prescribed your carbolic acid in several cases of fungoid disease during the last nine months with marked success. In three cases of fungus hæmatodes in which I employed it, the disease in all was checked in a remarkable manner. A thick crust was speedily formed on the ulcerated and bleeding surfaces, the exhausting discharges were completely arrested, and in one case there was great diminution in the size of the fungous mass. Your carbolic acid is almost a specific in cases of anthrax."—*Lancet*, Sept. 26, 1863, p. 362.

145.—ON SEA-SICKNESS.

By Dr. JOHN ALSTON.

[On studying closely the phenomena of sea-sickness, it is readily observed that the earliest noticeable symptoms pertain to the brain. The person feels uneasy, a something indefinable, but soon a sensation of giddiness or swimming in the head comes on.]

He perceives the sensation as if he were lifting off his feet, which increases so much that he feels he must sit down, or grasp some object, to prevent him from falling. He has now headache of a most intense nature; and about this period, or even at its earliest commencement, the nausea and vomiting set in, which is so soon to become such a painful symptom, and to obscure all the others by its prominence. But in many cases, where the voyage is very short, or where the weather is fine, the disease never passes beyond the giddiness and severe headache, with loss of appetite, which during the voyage are as persistent to the individual affected, as are the more marked and further advanced symptoms in those who are less fortunate in remaining at this stage of the disease. In others, the head symptoms are for a time swamped in the nausea, &c., but are never absent, and on the nausea disappearing, they become once more prominent. If a person has recovered from a first attack of the disease, sometimes it never again, in that individual, passes beyond the stage of headache; whilst, in others, the headache is the sure prelude to the next attack, and is even much more prominent in its character than the vomiting. I have observed, in many cases of this form of headache, much intolerance of light, and a symptom which seldom fails to be absent where the faculty is perfect, namely, an increased perception of smell. The secretion of saliva is increased; this secretion is an exception to all the others. I have thus again grouped the symptoms, and especially those peculiar to the onset of the disease, as in my opinion they are best adapted to give us the clue to its true nature, of which the later symptoms are but secondary signs, which only obscure the former.

From a careful comparison of these symptoms, and from continued observation, I have come to the conclusion that the "*fons et origo mali*," has its centre in the head, and that the gastric symptoms are but the result of that sympathetic relation, so well known as existing between the great nervous centres and the stomach, through means of the pneumogastric and other links. It will be asked, does any lesion exist, and what is the nature of the changes induced? That some change is produced by the motion of the ship is hardly to be doubted. What that change may be, is a matter for argument, and one requiring great consideration. It may be some organic lesion that is temporarily created, but against this it will be urged that no organic changes are known to exist, and when the disease has vanished, no bad results, as far as we know, exist to prove that any serious change has occurred. It may be functional derangement of the brain mass, produced by a constant succession of slight shocks to which the nervous centres are subjected, which in some cases, as instanced in steamships, is aggravated by the vibration of the machinery. That that is the true nature of the disease, I am

inclined to believe. The facts of the case, and strong analogy, I think, also tend to confirm this view. It will be urged, that calling this a functional disease of the nervous system is only another mode of begging the question, and does not explain to us in any other way than formerly the nature of the affection. But in reply to this I would say, that although I have chosen what is rather an anomalous expression in medical science to express the nature of the disease, still I am by no means prepared to admit that I will, by so doing, render the subject more obscure than I found it. But I have so named it, because I could find no other expression so suitable to explain the effects of the disease. That a marked change is produced on the functions of the nervous system can hardly be denied, as, even when perfectly recovered at sea it requires a long time to acquire the ability to study; the mind seems sluggish, and when an effort is made, and some amount of concentration of the mind has been accomplished, how often, with feelings of regret, must the subject be given up on account of the intense headache which is the result. That the disease is accompanied by some organic derangement I feel certain, and I am prepared to prove by analogy that the symptoms are those peculiar to shock. Thus, when an individual sustains a violent or sudden jerk of the body, he feels a disagreeable sensation in his head, and sometimes nausea, if the jerk be very sharp; or, if the person be very nervous, you have faintness and nausea with vomiting produced, in addition to the headache. Such symptoms are also produced by a blow or a fall on the head; and patients who have fallen from some distance and lighted on their feet have experienced the same, and yet no one thinks of referring them to the stomach: they are at once, and with much propriety, referred to the head. But it is not to be supposed that the symptoms we have described as peculiar to sea-sickness are in reality so; for, if we consider it as produced in the manner I have above described, it will be at once recognized as the same affection which we frequently observe in the case of the common garden-swing, where symptoms are produced, and an affection for the time set up that I defy any individual to diagnose as a different disease from that we have been describing. Nor is this the only example. Railway travelling produces like results in many; horse-riding or carriage-driving in others; and, in the new world, even sleigh-riding has been known to give rise to this disease. And, of these analogous causes, I am prepared to prove that the symptoms are similar to those of sea-sickness, and the cause unusual motion, with the certain fact that the sure and certain cure for all is an immediate and total cessation of all motion. Many will be inclined to ask what the effects are on the brain, or on the nervous centres which cause the secondary symptoms? Are they permanent and do they include any organic derangement of the nervous centres? This question I am not absolutely in a position to answer positively; but I think, from the symptoms already alluded to, that there is a temporary derangement of the action of the nervous centres produced; and that this remains often for some time after the disease is gone, is evinced by the fact that, after the patient is landed, and seemingly recovered, he feels for many days the sensation of heaving, and this is present when the body is found to be completely at rest. That the disease, in some instances of great severity, and in those individuals who are very susceptible to it, is capable of producing serious organic results, I do not for a moment doubt. To be brief, and sum up the opinion I have here given, I would define sea-sickness to be a disease caused by the effect of motion of an unusual character on the great nervous centres, which, for a time, or at certain times, as the individual is exposed to the exciting cause, so affects these centres as to hinder them from operating in that efficient manner in the economy, which is known to be their wont in a state of health.—*Glasgow Medical Journal*, Jan., 1863, p. 446.

146.—ON AN IMPROVED MODE OF USING REFRIGERATION AS AN ANÆSTHETIC AND AS A REMEDY.

By Dr. JAMES ARNOTT.

Congelation has hitherto been generally produced by placing the freezing materials on the part to be benumbed. In order to ensure success, care must be taken that the ice shall be well pulverised and rapidly mixed with the salt or salts constituting the frigorific. The mixture must be applied by means of gauze, or some other thin permeable material: and when the part is not in a horizontal position, a gutta-percha cup fitted to it may be required to keep the frigorific in contact with the skin. Now, all this trouble may generally be avoided by the adoption of an expedient similar to that employed in the therapeutical application of extreme heat. It is rarely the case that a burning substance is applied directly to the part; instead of this, an iron, which has been previously heated in the fire, is used. In a similar way, an iron, or a brass, or a copper implement, of appropriate shape, may be previously cooled in a freezing mixture, and applied with the greatest accuracy to any accessible part in whatever position this may be. A small, flat, laundry iron, which may be used for pounding the ice, will also answer in a great many cases as the refrigerator. If an extensive or continued refrigeration is required, two such irons, immersed in a semi-fluid mixture of two or three pounds of ice and salt, may be necessary to replace each other, just as two hot irons are often required for cauterization.

When a metallic body of this description has been cooled to below zero of Fahr., it will often arrest the circulation of the skin the instant it touches it; but more frequently it must be moved and gently pressed on the part for a few seconds, so as to bring a continuous fresh surface in contact with it while the blood-vessels are compressed.

Another expedient, partly resembling that just described, and partly that hitherto in use, consists of a thin metallic bottle (tinned iron or aluminium) completely filled with the frigorific mixture. A Florence flask will sometimes answer the same purpose.

It is not, however, in being a safe anæsthetic that the principal value of congelation consists. I am anxious to see it more generally employed as a prompt and certain antiphlogistic in all accessible inflammations. The extraordinary remedial powers of congelation in the various forms of chronic rheumatism, which I have related in former publications, may be attributed partly to its anæsthetic and direct antiphlogistic virtues, and partly to the peculiar counter-irritation which it excites. As promptness of action is eminently characteristic of this remedy, it would be especially serviceable in many of those inflammatory and painful diseases to which soldiers and sailors are liable, and which are at present cured with so much difficulty as to render them long unfit for their duties. Amongst these may be reckoned sprains and inflammatory affections of the joints, wounds, irritable ulcers, headache, lumbago, and other painful affections, inflammation of various glands, ophthalmia, erysipelas, and other diseases of the skin.

Being convinced, from no little experience, that a short application of intense cold produced by a frigorific mixture of appropriate strength, constitutes a certain and speedy remedy of every accessible inflammation, as well as a means of preventing pain in operations, without the risk of sudden or (which has been much more frequent) consecutive death attending the use of chloroform. I do not deem that portion of my time misspent which has been employed in devising and describing such a simple and easy mode of making this application as may lead to its more general adoption.—*Medical Times and Gazette*, June 6, 1863, p. 583.

147.—THE RELATIONS OF HEIGHT AND WEIGHT IN THE HUMAN BODY.

In the Statistical Society's Journal, of March last, a very interesting table is given, showing the growth of the human body from 18 up to 30 years of age, indicated by weight and height.

The averages were taken from upwards of 4,800 observations at all ages. Thus a lad of 18, if he be 5f. 4in. in height, speaking in round numbers, ought also to weigh somewhere about 8st. 10lbs. Given the age of 21, and the height 5ft. 5in., he should weigh 9st. 5lbs. Ascending still further, and assuming the age to be 25, and the height 5ft. 6in., the weight would be 10st. 5lbs.; and at thirty years of age, with a height of 5ft. 6in., we ought to have the result 10st. 1lb. In fact so clear and demonstrable is this "law of increase in the growth of man," as determined by very extensive measurements taken at different times by scientific gentlemen, that we can almost work, as it were, in a rule of three sum, any one condition we like. Taking the converse of what we have already exhibited, we may say that if a lad of 19 weighs 9st. 4lbs., he ought to measure in height 5ft. 4in. and a little more: if at 22, 9st. 12lbs., he should be 5ft. 6in. in height, and so on.—*British Med. Journal*, April 25, 1863, p. 438.

148.—ON THE UNFAVOURABLE INFLUENCE OF SUDDEN CHANGE OF CLIMATE.

By Dr. J. HENRY BENNET, Physician Accoucheur to the Royal Free Hospital.

[The attention of the profession has not previously been drawn to the unfavourable influence exercised upon health by the sudden change from a northern to a southern climate.]

In October invalids leave England's moist atmosphere, when the weather is already getting cold, and the evenings and mornings are foggy. The express train is often taken at Paris for Marseilles, and in sixteen to twenty hours the dry sunshiny Mediterranean region is reached. There it is still summer; the sun is powerful; the temperature high, usually above 70° Fahr. The liver and skin, which were already in England relieved from the stimulus of our mild summer heat, are called violently and suddenly into action. The result is diarrhoea, bilious attacks more or less severe, skin irritation, urticaria, boils, &c. Diarrhoea is so common that few northerners escape; and it is universally, and erroneously I believe, attributed to change of food, to wine, and to such influences.

These attacks are most severe with those who hurry their departure from England, push rapidly to their destination, and reach the south in September or early in October. In my opinion the last week of October is quite early enough for invalids, or even healthy northerners, to arrive in the south of Europe. The cool weather of autumn does not begin until about the second week in November; and a month or six weeks of hot, oppressive southern weather, with a liberal allowance of mosquitoes, is generally damaging to the health of "north country people." The worst cases of bilious derangement that I have to attend each autumn are amongst such.

By the end of April or early days of May the sheltered Riviera undercliff begins to be disagreeably warm. Moreover, fine midsummer weather has been enjoyed so long that it becomes difficult to believe that winter still reigns in the north. The invalids are tired, also, of their six months absence from home, and their hearts are set on the return. Once the homeward journey has commenced it is generally rapidly carried on, and many arrive in Paris or in England early in May, much too soon for their own good. In the north of Europe, if the wind is from the south, in April and May the air is mild and balmy, and vegetation makes rapid strides; but until the mountain lands of Norway and Sweden are freed, or partly so, from their

canopy of snow, which does not take place until June, a north-east wind brings cold, chilly weather, and night frosts. It is this cold, chilly atmosphere, an atmosphere, too, more or less loaded with moisture, that often meets the invalid on his return home. The skin and liver, previously in full operation, are checked suddenly if the journey has been a rapid one; extra work is thrown on the lungs and kidneys, and very often severe attacks of influenza, of coryza, of bronchitis, of hæmoptysis, are the result.

I have pointed out the evil; I must now point out the remedy. It is to ignore the facilities afforded by express trains, and to make both the southern and the northern journeys in such a manner as to become acclimatized to the great changes.

Serious invalids who intend to winter in the south of Europe, are better out of England the last week in September, or early in October; but, as we have seen, their winter residence is scarcely fit for them before the end of October. The two, three, or four intervening weeks should be spent on the road. A quiet, leisurely progress southward allows the human economy to gradually accustom itself to the change of climate. A favourite station with me is Fontainebleau, thirty miles south of Paris. The climate is continental, drier than that of England, the hotels are good, and the forest scenery is very interesting and beautiful. A week or ten days may be spent there both pleasantly and profitably for health, much more so than in Paris.

Further south we have Valence, Aix, Nîmes, Arles, &c. I would, however, more especially recommend a small watering-place, which I may nearly lay claim to have discovered, as far as my countrymen are concerned. It is Gréoulx, a five hours' picturesque drive from Aix-en-Provence. Gréoulx is merely a village, with a large comfortable hotel, in its own grounds, erected over a hot sulphur spring, one of the most powerful and longest known thermal waters of the south of France. Its celebrity, however, is all but entirely confined to that part of France. I myself found it out by the map, whilst trying to discover an autumn and spring intermediary station. I visited it last May, and was much pleased with the scenery from Aix, with the hotel and its grounds, and with the very lovely district in which it is situated. There are two wild mountain rivers—the Durance and one of its tributaries—within a mile of the house, and fishing and shooting are provided for the inmates, with all the resources of French social country life. The hotel makes up some 200 beds. Gréoulx is quite out of the beaten track, far away from railways, amongst the hills of Provence, and a residence there must have many charms. I sent a little colony of my Mentone friends and patients there this spring, and they were all delighted with it. There is an intelligent resident French physician, Dr. Jaubert. I do not think a pleasanter place could be found to spend a fortnight in on the way south.

The same course can be followed by invalids on their return north. The departure from Mentone, Nice, Cannes, or from Italy or Spain, can take place at the end of April, or on the first day of May; and a leisurely journey may be made towards the north, so as to reach England by the end of May or the first day of June. Gréoulx is open on the first of May, and is even thus early very lovely; the deciduous trees in full leaf, and the nightingale in full song. A fortnight at Gréoulx, a week at Fontainebleau, and May is pleasantly consumed, and England and its climate reached by slow stages, which neutralize the risks attendant upon the "cannon-ball" style of travelling.—*Lancet*, Aug. 22, 1863, p. 218.

149.—ON THE ACTION OF MEDICINES.

By DR. DAVID NELSON, Professor of Clinical Medicine, Queen's College, Birmingham.

[Speaking of the heterologous class of medicinal agents, Dr. Nelson shows that they act either as direct neutralisers, as excitors, or adjuvants of morbid action, or as specifics. He then observes.]

From the fact that all remedial agents which enter the body have to deal

with living tissues under innumerable variations of condition, and react within it according to peculiar vital laws, it happens that even the simplest homologous elements may act in diverse manners, according to the constitutions and idiosyncrasies of the individual subjects; and much more so those that are composite and heterologous. Beers, wines, spirits, and spices, and even albumen, starch, and oil, will behave very differently in different bodies, according to constitution and condition, as every one of delicate stomach is so well able to testify; how much more so those matters that are more foreign to the system.

1. Amongst the class of *neutralisers*, the antacids and antiseptics are almost the only agents that act in an invariable manner; and may, therefore, be passed over without comment beyond an observation or two in regard to the permanganates. While fully alive to the admirable antiseptic virtues of cinchona and the mineral acids, as well as some of the chlorides, I yet think there are conditions in which the internal and external use of the permanganate of potassa affords results far transcending those of any other agent. While bark and the mineral acids are more potent for good in the blood-putrescence of fever, carbuncular disease, blood-scurvy, and pulmonic gangrene, I believe the permanganates to be incalculably more efficacious when the surfaces are involved; as in cancers, and foul ulcers of the skin, and putrid states of the mucous membranes of the mouth, nose, throat, stomach, and intestines, and vagina and uterus. While the chlorides, creasote, and carbolic acid, &c., displace one bad odour, they themselves bring others scarcely, to some persons, less offensive; but the permanganate simply deodorises and freshens. The only odour perceptible is that pleasing impression which arises from the smell of recently bleached clean linen. Theoretically speaking, we have here a simple hyperoxygenation and dispersion of the offending elements by the powers of ozone; but, be the precise nature of the action what it may, the practical results cannot be doubted; for they are invariable and instantaneous; so that, against the putrefactive horrors of cancer, mercurial salivation, necrosis, and certain affections of the liver, intestines, and uterus, no agent can approach the refreshing influence of the permanganate of potassa, a preparation as beautiful in appearance and as mild in taste, as it is certain and beneficial in its action.

The other classes of the heterologous remedies vary in their effects, and not alone from differences in themselves, but from differences in the constitutions of the patients. Thus, the power of bearing cordials or spices varies very much according to the state of the mucous membrane. Alcohol takes very different effects upon different individuals. While one person of compact, powerful brain, and rigid fibre, will only be moderately stimulated or slightly elated; another, of inactive and lax, full habit, will be rendered sleepy and even stupefied by a much less quantity. With the first there will merely be an increase of the animal heat; with the second, there shall be congestive engorgement of the brain, liver, and lungs, &c., the heart palpitating, the respiration impeded, and the face highly flushed.

Under the bodily depression of disease, or the mental sadness of adverse affairs, much of this stimulant may be borne without any other effects than simply keeping the patient at par with others; while the plethoric and sanguine subject will become elevated by a moderate allowance. We also know what large quantities of sulphuric acid may be taken under scurvy, and of nitrate of potassa under fibrinous rheumatism, before they produce their counteractive effects. With regard to sedatives, how very little will often compose to sleep the full-fed, easy, unreflecting subject; and, on the other hand, what large doses may be administered under acute pain and high excitement, without any further result than the induction of a light sleep, or the mere soothing and lulling of intense agony. In the strong and rigid, these alone may occur; but in the lax and pale, how often have we symptoms of faintness and oppression which the patient can only compare to a sense as of the approach of death. All who hear me are of course familiar with the action of opium and other agents of that kind upon certain individuals, and *how dangerous is heavy sleep in such diseases as trachitis, pneumonia, and*

cardiac obstruction, where nature for her own safety demands watchfulness. In the aconite we have also a good illustration of the respective tolerance of a remedy by one patient or another. In the deep-seated pains of bones, and other more solid tissues, and also of the cranium and larger joints, but more especially in sciatica and amaurosis, all who have used it aright must confess to the wonderful relief afforded in respect to the leading symptoms of intolerable and exhausting pain; at the same time, there are patients of a constitution that cannot well bear it, and whose hearts become so fluttering and feeble under its influence as to cause very great anxiety. It is fortunate, however, that potent diffusive stimulants have an excellent counteractive effect in such cases; and I always take care to administer such in combination with the aconite, whenever I do use it upon such subjects. The same observation is applicable to so depressant and relaxant an agent as antimony. Here we have a powerful and direct sedative, a calmer of the heart's action, a corrector of febrile heat, an expectorant and diaphoretic; yet ever requiring to have its action modified or restrained according to various circumstances. Here the utility of judicious combination becomes vividly apparent; and experience has to speak of the beneficial mutual control exercised between this remedy and others of a different, or even opposite nature when allied together. Thus is observed the subdued pulsation of the cranial vessels, the gentle warm perspiration, and the subsidence of headache, stupor, or delirium, when the antimony is united with opium, as in fever. A similarly modified action is to be observed when pneumonia occurs in feeble constitutions, and when one desires to calm the heart's action, and open the pores of the skin without inducing nausea, or the sinking sense of weakness so apt to prove fatal in such cases. Combined with cinchona and ammonia, this result is obtained from it; and, though it might be urged by the sceptic, and those of the dry chemical school, that the ammonia, or the astringent principle of the bark, would decompose the soluble tartrate of antimony, and so render it inert, such, I feel certain, is not the case; and it will be observed that, while the antimony is so far chemically changed as to prevent its immediate nauseating effect upon the stomach, it yet acts in its usual sedative and diaphoretic manner, and, in fact, finds its way to the recesses of the system quite as surely, and more steadily, than in its more simple and soluble form. The fact is further proved by the beneficial action of the antimonial powder; and it is well known that the continued use of antimony will kill its victim, even though never used except in effervescing draughts, the alkali of which would as certainly decompose the tartrate as either ammonia or bark. Other remedies of an opposite mode of action, may also, as we know, be combined with advantage; as digitalis with ammonia or with arsenic, or quinine and opium with lytta, &c.

2. In the class of *excitors or adjuvants of morbid action*, we have an illustration of that one kind of medical procedure on which is founded the absurd dogma of "like cures like," with us a limited truth, contained within the narrow compass of this one occasional line of treatment; but which, by a visionary sect, has been attempted to be set up as a universal principle in therapeutics, in the same manner as other purblind and enthusiastic panaceists have attempted to set up water, cod oil, electricity, and hot air. Each of these things have their uses, as we know, within certain bounds, and all rational physicians have so employed them; but the laudation of any one of them as a panacea, is simply an absurdity that can only be professed by rapacious rogues, and credited by the foolish and ignorant in matters medical. The sole ground-work of the phrase "like cures like" is evidently, then, this partial medical truth, and its natural operation in what one may call primary reaction, or that effort by which the constitution endeavours of itself to cast forth, as speedily as possible, whatever hurtful agent may have entered the system. Such primary and spontaneous reaction may assume the shape of vomiting, or purging, or sweating, or extraordinary micturition, or the explosion of eruptions, or boils upon the surface, or all combined, or in succession. Under such circumstances, we may certainly increase the reactionary symptoms with great benefit to the patient; especially if the efforts at expulsion be somewhat ineffectual. If the vomiting arise from offensive mat-

ters in the stomach, our readiest cure clearly consists in an emetic; if the purging proceed from a similar cause in the intestines, our reliance is in a brisk purgative; if the reaction be towards sweating, expectoration, or diuresis, we promote the flow of the respective excretions, and, if there be a tendency to cutaneous eruptions, or boils, we may give tonics, and thereby apparently increase the disorder by forcing out all latent morbid matters. So far all is consistent with experience and common sense; but what would be said of him who, acting under the ordinary dry rule of *similia similibus curantur*, should exhibit an emetic during the vomitings of cerebral disease or pregnancy; a purgative in ulceration of the bowels; a sudorific in the sweatings of phthisis, or a diuretic in diabetes? The question had better not be answered; for the answer would be a very rough one, in keeping with the roughness of such practice.

Amongst the excitors of morbid action, mercury must occupy a conspicuous place, when it is used to the extent of salivation. In this wise, we see in it a wonderful neutraliser of the syphilitic virus, and a promoter of that series of changes in the body which is equivalent to a distinct disease in itself, but yet acting curatively towards other diseases of the most formidable character. By some mysterious means, it invades the vitality of certain morbid growths, attenuates and dissolves the fibrinous material in the blood and elsewhere; so abating inflammation, softening and reducing hard swellings, and, in fact, disintegrating the tissues generally, if carried sufficiently far; but yet in this manner controlling deep-seated action, and guiding to a safe issue the most dangerous internal disorders of the brain, heart, lungs, liver, intestines, serous surfaces, and last, not least, of the eye.

3. Turning our attention to the *alteratives*, we find amongst them innumerable illustrations of the fact that agents may work with the greatest efficacy, and yet their modes of operation remain utterly unknown. We must include amongst them the antispasmodics, the tonics, the febrifuges, and other specifics. In some of them we have but to admire the happy results, without having the remotest idea of how these have been produced. In others, we have some glimmering notion of the secondary means by which such results have been attained. For example, how strychnia excites or how conium paralyses the powers of the spinal system; how castor or valerian calms that wild nervous excitement which distinguishes emotional hysteria—we know nothing. How arsenic or quinine arrests ague or fever, we are equally ignorant. How calumba, gentian, and other such bitters, give tone to the stomach; and how bismuth assuages ordinary gastralgia—we know not. Neither can we explain how lobelia controls spasmodic asthma, or digitalis lessens palpitation. On the other hand, we do indulge in some reasonable suppositions with regard to a few of such remedies. For instance, when we employ steel and emmenagogues in the case of the female epileptic, who is also afflicted with deficiency of menstruation, and meet with a double success in bringing on the monthly discharge and arresting the epilepsy, we are entitled to believe in the uterine source of the more alarming disease, and the rational means of its subjugation by the removal of the primary existing cause. So when we use purgatives with the constipated, and pepsine with the dyspeptic, and find the fits abate, we are equally entitled to hold the gastro-enteric irritation as the main cause. Also when we employ silver, and find that a worm is expelled while the epilepsy disappears, we feel further convinced that the worm was the cause of the fits, by reflex action upon the nervous centres; and that the silver acted indirectly upon the epilepsy as an anthelmintic, in like manner as the steel and ergot, and the purgatives and pepsine, acted as deobstruents and solvents. Of course, as such derangements of the uterine and gastro-enteric functions may occur in thousands of instances without inducing an epilepsy, we must conclude that there exists in the exceptional cases an epileptic diathesis, that is, an occult something *plus* the ordinary conditions; and it is here, when the disease is apart from any known organic disease of the brain or other structure, and when, so far as we know, it is purely, as we call it, functional, but capable of being moderated or removed by remedies, that such remedies receive, more emphatically, the

name of alteratives. Amongst these stand foremost zinc, copper, arsenic, and quinine—how operating we do not know, beyond this, that they seem, by their so-called tonic powers, to constrict the capillaries, and so lessen that congestion of the brain and nervous system which is apt to deprive these tissues of their natural quiet vigour and sustained tonicity. Under their influence, the white of the eyes shows less of that dull, dirty, reddish brown or thick-set venous network, so characteristic of the epileptic aspect; the mind becomes less hazy and confused; the muscles are not so tremulous; the hands can grasp objects more firmly; and the feet are moved upon the ground with more precision and elasticity. Yet sometimes one of these agents will act more beneficially in certain cases, and another in others, without any possibility of our knowing why. Again, combinations will often effect what each remedy separately has been unable to accomplish. This is again and again illustrated in obstinate chronic diseases of the skin and other such textures. Mercurials, iodides, and arsenic may each be used in succession and in increasing doses for a length of time, with little or no effect; and yet the iodide of arsenic and mercury, as represented by Donovan's solution, administered outwardly and inwardly, may speedily induce a favourable change, too marked and too often witnessed to admit of any doubt as to the cause.

So also with those remedies used in ulceration of the external surface—a subject of profound interest to the physician as well as the surgeon, as exhibiting under our eyes the processes of erosion or of healing, according as the reparative powers are strong or weak. We can tolerably well understand how, in an old standing indolent lesion of the surface, besides the employment of tonics and nutrients internally, we should also use certain applications superficially. We can easily see, by *primâ facie* reasoning, the utility of such agents as simple emollients, sedatives, deodorisers, antacids, absorbents, stimulants, and astringents. We can discern the directly beneficial action of the protective qualities of poultices, cerates, and oils, as imitating the scab of nature; we witness the skin-like support of firm bandaging or strapping; we can appreciate the cleansing and cooling effects of pure water; we can see the use of carbon in absorbing irritative gases; of chalk in neutralising acid exudations; of lytta in stimulating the circulation in sluggish sores; of opium in subduing undue sensibility; of the salts of iron, copper, zinc, or lead, in constricting the lax vessels, and firming the flabby granulations of old and deep excavations; of nitric acid and nitrate of silver in breaking down the brawny indurations which abut upon the softer textures and prevent any approach of the gaping sides of the sore:—all this, I say, we can tolerably well understand upon the general principles of physiology and therapeutics; but why, after we have used all these agencies in vain, a little sprinkling of calomel or of the red or black oxide or bichloride of mercury, or the internal use of iodide of potassium, should induce healthy cicatrisation as if by miracle, is to us a mystery. It is well enough, as is often the case, to say that such ulcerations, &c., must have been of a specific character; and that, even though syphilis could not be proved in the person so affected, yet his parents, or grandparents, or great-grandparents must have had it. Be it so, or let us suppose so; yet the mystery of the action remains the same as ever. It is a bare truth, a simple and inexplicable fact, which, as no rationalist can explain, so no sceptic can doubt.

Before concluding, I would also wish to speak briefly regarding the variable action of different anthelmintics, whether owing to the different constitutions of the patients, or the different constitutions of the worms, I am unable to declare. But this is certain, that one has sometimes used the koussou with perfect success, and at other times with no result at all; while the oil of male-fern has dislodged the parasite at once. In cases where both koussou and fern oil have failed, the oxide or the nitrate of silver has proved efficacious, the worm having been expelled after the first dose of the one or the other. These, however, are not to be relied upon in all cases; and now that the powers of each have been subjected in one's practice to repeated *separate trials*, I usually prefer using them in succession, begin-

ning with the silver, and following that up with the fern oil or kousso, as required. The oxide of silver with calomel I have repeatedly found useful for young children. One little girl some time ago was brought to me on account of attacks of epilepsy, and was ordered two grains of the oxide of silver, with three grains of calomel, every other night for a week. A large tenia was passed after the first dose, and no fits have occurred since. I ordered the same for a young lad; and, after each dose for three times, there came a round worm, each of the three being ten inches long. These are but examples of a great many more. A lady who delayed taking, on account of its offensive flavour, what was ultimately successful in her case—namely, the fern oil—adventured at first rather upon the kousso. After drinking the infusion, she proceeded to chew and swallow the roughly powdered plant for an hour or so; and in a solemn manner, such as her son-in-law could only compare to a cow chewing her cud. She did stop short, however, and it was not successful; but the remainder being given to an old woman of the village noted for having a tapeworm which almost daily came away piecemeal, the entire parasite was discharged; though she had previously taken turpentine, gin and jalap, and other popular remedies, without that result.

Colchicum affords us another instance, when timely employed against the primary urinary indications, of a valuable and certain specific, not merely in ordinary articular gout and rheumatism, but in the various nervous, muscular, and osseous pains, and in the bronchitis, gastralgia, pleuralgia, and asthma of that peculiar diathesis. Some have attributed its virtues to its modification of the renal, and others to its alteration of the hepatic secretions; the latter even asserting that no good change occurs till purging takes place. Having used it carefully and extensively, I would emphatically deny the accuracy of this last quoted assertion. The benefit can be gained without purging, or indeed any other bodily disturbance whatever; but never, so far as I have observed, without having first effected a solution of the urinary deposits, or a conversion of the irritative insoluble urates into urea. Act in whatever manner it may, however (though I believe it acts both on kidneys and liver), we use it for its usually happy results; and, having ascertained these by giving it at one time and withholding it at another, and noticing the different results, our knowledge of such results does not at all prevent us from combining it with other agents, but rather enables us to do so the more effectually. Taking rheumatism as the aptest illustration of one's procedure, we would ally the colchicum with mercurials and saline aperients in acute inflammatory cases; with hyoscyamus, or opium, or aconite, &c., where severe pain prevailed; with hydriodate or nitrate of potassa, or both, where fibrinous deposits or swellings occurred; and with soda, or rather potassa, in all. Complicated cases might demand a still greater variety of combinations of these and also other adjuncts, according to symptoms; as bleeding, or leeching, or antimony, for the plethoric; and bark, cardamoms, and ammonia, for the aged and enfeebled.

Such I conceive to be the rational employment of specifics in conjunction with general remedies; the first operating upon the essence of the disease, and the others on its concomitant symptoms; and, so believing, I can see no inconsistency in a sound combination of the so-called empiric, or rather experimental, and the rational systems of medicine. Indeed, they must be so combined, to enable our composite science and art to assume the character of a real philosophy.—*British Medical Journal*, June 13, 1863, p. 617.

150.—ON THE NATURAL HISTORY AND TREATMENT OF HIP-JOINT DISEASE.

By RICHARD BARWELL, Esq., Assistant Surgeon to the Charing Cross Hospital.

[In a previous paper Mr. Barwell treats of the nature of the disease in the hip-joint; in the present he speaks only of the effects of such disease, *i. e.*, the deformities produced, and of the methods of overcoming them. The

morbid conditions with which we have to do, are contraction of muscles, and fibrous adhesion of the femur to the pelvis.]

These causes of deformity may be overcome by sudden stretching under chloroform, and by gradual extension, alone or conjoined, and both may be combined with subcutaneous myotomy. Now it is of the greatest importance to the welfare of the patient and to your own reputation, that in each case the best means should be taken to attain the end in view. Sudden action is the best method of overcoming any considerable amount of false ankylosis, particularly if the tissues be extensive and old; also, though it aids to a certain degree in subduing a contracture, yet our main reliance against this condition must be gradual extension. The more I have seen of these cases so have I gradually more and more laid aside myotomy. I am sure that in non-dislocated cases it is but seldom needed, and then only one or two muscles should be cut. It is desirable that all scars of the skin should be loosened previous to sudden rupture of the adhesions. This may often be effected by mere manipulation, frequently repeated; if they will not yield to this means, they may first be divided subcutaneously, and then, while the occluded wound is healing, they must be moved in all directions to render the hypodermic new tissue as loose as possible. I have, in my work, "On Diseases of Joints," endorsed an opinion of Mr. Brodhurst's, that the necessary muscles should be divided some days before the sudden rupture. Subsequent experience has taught me to change that view entirely. If sudden rupture be needed at all, the limb is too stiff for us to render the muscles tense, and thus to discover if they really require division; and should the surgeon set to work to divide those muscles which he thinks may need such treatment, he will most certainly often perform that operation very unnecessarily. On the other hand, if, while straightening a limb, the surgeon should find it compulsory to divide tendons, he should be careful to introduce the knife at points of the skin which will not be rendered tense during his ultimate procedures, and if at the time he carefully exclude air, he need not fear the threatened ill consequences.

[In a subsequent part of the article, Mr. Barwell describes the "sort of knack" by which tough adhesions are to be overcome; for this is not to be done by violence and rough force.]

Mere strength may be employed in vain against tough materials which a skilful twist, a *Kuntsgriff*, as the Germans have it, will immediately overcome. The thigh should be bent up till a decided point of resistance is reached; against that obstacle the limb is to be pressed, not violently, for a minute or two; then a sudden springy jerk in the direction of flexion is to be given. If the sound of rupture follow, the movement is to be continued by pressing the limb back; if the adhesions do not give way, the jerk is to be repeated in slightly different directions as rapidly as possible. The condition and peculiarities of the joint, and the sensation communicated to his hand, must supply the surgeon with minor but still important manœuvres.—*Lancet*, Nov. 21, 1863, p. 585.

151.—ON THE IMPORTANCE OF TAPPING THE JOINTS AND BURSÆ MUCOSÆ.

Professor Inzani, of Parma, asserts the perfect harmlessness of puncturing a distended joint, even during the progress of acute inflammation. The fear of bad consequences following from the wound of the tendinous structures is a mere imagination of the ancients; nor does the air ever appear to make its entrance. The puncture may be made with a trocar or a lancet; the latter is preferable for superficial joints. The author has operated very frequently on the knee, several times on the elbow, occasionally on the carpus and ankle, and once only on the hip; no bad consequences ever followed. Pressure by means of a starched bandage should be made, and when the synovial sac refills it should be again punctured before the distention has

advanced too far. In this way a radical cure may be obtained. Examples are given in which large joints, principally the knee, were opened for effusions of blood, of serum in acute inflammation, of serum in chronic inflammation, and of pus—usually with a successful result. But paracentesis should be avoided where the skin is much thinned and ulceration seems impending. In the synovial bursæ paracentesis has given equally good results. The examples which are given are those of effusion in the sheaths of tendons after accident (as the peronæi in sprains of the foot, the extensors of the thumb in falls on the hand), in which a puncture will give exit to synovial fluid mixed with blood, with much relief to the pain and abbreviation of the course of the disease. The author believes that by these punctures chronic synovitis may often be arrested in cases which, treated by ordinary methods would end in "white swelling," and that in dropsy of the joint the treatment by repeated puncture and pressure is as effectual and more safe than by injections.—*British Med. Journal*, Nov. 21, 1863, p. 551.

152.—THE OPERATION FOR THE RADICAL CURE OF HERNIA.

Case under the care of J. Wood, Esq., at King's College Hospital.

A. F., aged twenty-five, a constable in the Irish constabulary, admitted into Victoria ward for a right oblique inguinal rupture of three years' standing, descending into the scrotum, and hitherto retained with difficulty by the trusses he had worn, under which it was constantly slipping down into the scrotum.

October 17th, 1863.—To-day, Mr. Wood operated upon the patient, in the presence of Professor Pirrie, of Aberdeen, and numerous other visitors. Mr. Wood performed, on this occasion, the operation by wire, which he has used in all his later cases in adults with much success. As now performed by him, the proceeding seems to have been much simplified, and is effected with great freedom, ease, and celerity.

The first step consists in an oblique incision, one inch long, into the scrotum, over the fundus of the rupture, with a small, narrow-bladed knife. The fascia of the part is then separated from the skin for the space of an inch round the edges of the incision by turning the knife flatwise under the skin. The denuded fascia is then invaginated upon the index-finger into the hernial canal as far as the internal ring. The edge of the conjoined tendon of the internal oblique and transversalis muscles is then carefully felt for, and raised upon the finger towards the surface. A stout, strong needle, mounted in a handle, is then passed along the finger, and pushed through the conjoined tendon and the inner pillar of the superficial ring. When its point is seen to raise the skin of the groin, the latter is drawn inwards by an assistant to its utmost extent, and the point of the needle is then pushed through it. The bent end of a piece of stout copper wire, silvered (two feet long) is then hooked on to the eye of the instrument, and drawn with quick movement through the groin and scrotal incision. The needle is then disengaged; the finger again introduced into the canal, and placed behind Poupart's ligament, just below the internal ring. The needle is again passed to the outer side of the finger, and, guided by its point, is made to traverse the middle of the ligament while raised upon the finger. The skin is then drawn outwards until the point of the needle can be made to pass through the groin puncture before made. The opposite end of the wire being then hooked on, is drawn back with the needle into the scrotal incision, leaving the middle of the wire as a loop issuing from the groin puncture. The sac of the rupture opposite the scrotal incision is then pinched up between the finger and thumb, and raised from the spermatic cord, which slips away from the pressure. The needle is then passed across the sac, entering at one end of the incision, and emerging at the other. The inner end of the wire is again hooked on, and drawn through or behind the sac close upon the spermatic cord. The two ends are then twisted down into the scrotal incision.

Traction is next made upon the upper loop of wire, and by this means the fundus of the sac and its scrotal coverings under the skin are invaginated into the canal as high as the deep ring. The loop is then twisted firmly down into the groin puncture, holding the invaginated parts firmly in their new position. Lastly, the wire loop is bent down to meet the lower ends of the wire, which are bent upwards and fastened to it by a hook cut off at a convenient length. A stout pad of lint is placed under the wire arch thus formed, and a spica bandage placed firmly over all.

On this occasion Mr. Wood showed two patients on whom he had operated a year and ten months and fourteen months before respectively. The first was a muscular adult male, in whom the rupture was direct and scrotal, and one of the largest he had ever operated on, trusses being quite inefficient. Since the operation he had been subjected to very heavy work as a market-garden portor. When examined to-day in the operating theatre, the rings were found quite closed, and no impulse could be felt or seen on coughing violently; in fact, the condition of the side operated on was better and more resisting than the other. The second case was that of a little child aged one year and a half at the time of the operation, and one of the youngest patients he had operated on. The rupture was large, scrotal, and congenital, and no truss had been found to retain it. The operation was performed by the use of the rectangular pins. On being tested in the theatre, no impulse whatever could be detected in this case. The trusses had not been worn for some time previously.

In his clinical remarks, Mr. Wood observed that he had now operated in more than eighty cases, of which more than two-thirds had turned out so far complete cures. Several more had been improved by the proceeding so much that the use of trusses was rendered easier and more effective. These had been generally very large and unmanageable cases occurring in adults at a late period of life. The symptoms following the operations as he now performed them—viz., with wire on adults, and with the rectangular pins on boys and children—were so mild as to be scarcely worth recording. The wire or pins were kept in from ten to fourteen days, the patients seldom staying longer than a month in the hospital. From time to time he had shown cases in the hospital which had been operated on from two to five years previously, and remained quite cured after leaving off the truss altogether. Mr. Wood also called attention to the peculiar kind of truss which he recommended to be worn both before and for some time after the operation. That for oblique inguinal rupture was provided with a boxwood pad of a horse-shoe shape, which pressed upon the pillars of the superficial ring without forcing the integuments into the inguinal canal, and thus dilating it. That for direct hernia was in the shape of an ovoid ring, which had the same but a more direct effect. In particular cases these truss-pads were provided with springs to regulate the direction of the pressure independently of the side springs. These trusses were perfectly comfortable and easy to wear, and had in some instances produced remarkable effects in closing up the hernial canal.

Nov. 5th. To-day the wires were withdrawn, in the case above first described without difficulty. The patient has been perfectly well, and the wound has discharged so little as to require dressing only a few times. A large amount of consolidation is felt in the inguinal canal, producing a slight amount of swelling of the testicle. The patient enjoys very good health and spirits.—*Lancet*, Nov. 21, 1863, p. 590.

153.—PHYSIOLOGICAL PROPERTIES OF NITROBENZOLE AND ANILINE.

By Dr. LETHBY.

Dr. Lethby observes that, until recently, there has been a common belief among the unlearned that a skilful poisoner could so apportion the dose and

combinations of certain subtle agents that he could destroy the life of his victim with certainty, and at the same time measure his allotted moments with the nicest precision, and defy the utmost skill of the physician and the chemist.

Modern toxicologists have long since discarded these notions, and have set them down to the vague fears and exaggerated fancies of the ancients. But an account of the physiological properties of nitrobenzole shows that there is one substance, at least, which realises to a great extent the extraordinary opinions of the ancients. This compound may be given to-day, and yet, if the dose be not too large, it shall not manifest its action until to-morrow or the day after, and shall then destroy life by a lingering illness, which shall not only defy the skill of the physician, but shall also baffle the researches of the medical jurist.

In every manufactory where nitrobenzole and aniline are prepared on a large scale, the peculiar narcotic effects of these poisons are often observed. The vapours escaping into the atmosphere are breathed by the workmen, and cause distressing headache and a heavy sleepy sensation. For the most part these effects are not serious, but are quickly relieved by fresh air and a mild stimulant, as a glass of brandy-and-water. Now and then, however, the workmen, from carelessness in their habits, expose themselves to the action of comparatively large quantities of these poisons, and then the effects are most dangerous. Two fatal cases of poisoning by nitrobenzole have been referred to Dr. Letheby by the coroner for investigation during the last two years, and in both instances they were the results of careless manipulation. The effects were nearly the same in both cases, notwithstanding that in one the poison was inhaled, and in the other it was swallowed. For some time there was no feeling of discomfort beyond that of drowsiness; gradually, however, the face became flushed, the expression stupid, and the gait unsteady—the sufferers had the appearance of persons who had been drinking. Little by little this stupor increased, until it passed into profound coma, and in this condition they died. The progress of each case was much the same as that of slow intoxication, excepting that the mind was perfectly clear until the coming on of the fatal coma. This was sudden, like a fit of apoplexy; and from that moment there was no return of consciousness or of bodily power; the sufferer lay as if in a deep sleep, and died without a struggle. The duration of each case was nearly the same time; about four hours elapsed from the time of taking or inhaling the poison to the setting in of the coma, and the coma lasted for about five hours.

After death there was no appearance of convulsions, but rather of narcotism and apoplexy. The face was flushed; the lips were livid; the superficial vessels of the body, especially about the throat and arms, were gorged with blood; the dependent parts were turgid; the blood was everywhere black and fluid; the lungs were somewhat congested; the cavities of the heart were full; the liver was of a purple colour, and the gall-bladder distended with bile; the brain and its membranes were turgid, and in the case of the man there was much bloody serosity in the ventricles. Analysis discovered the existence of nitrobenzole in the brain and stomach, and also of aniline.

These effects were so remarkable, that Dr. Letheby determined to examine them still further by experiments on domestic animals. Two classes of effects were clearly observed; there was either the rapid coma which characterised the operation of the poison on the human subject, or there was a slow setting in of paralysis and coma, after a long period of inaction.

The general conclusions which appear to Dr. Letheby to be warranted by his investigations are:—

1. Nitrobenzole and aniline in its free state are powerful narcotic poisons.
2. They exert but little action, as local irritants, on the stomach and bowels.
3. Although the effects may be quick, and the fatal termination of them rapid, yet nitrobenzole may remain in the system for a long time without manifesting its action.
4. The salts of aniline are not nearly so poisonous as the free alkali.
5. In rapid cases of fatal poisoning both the poisons are

readily discovered in the dead body. 6. In slow cases the poisons may be entirely changed or eliminated, and therefore not recognisable. 7. Both of the poisons appear to be changed in the body by processes of oxidation and reduction, nitrobenzole being changed into aniline, and aniline and its salts into mauve or magenta.—*British Medical Journal*, Nov. 21, 1863, p. 550.

154.—ANTIDOTES FOR STRYCHNIA.

PROFESSOR R. BELLINI, after conducting a long series of experiments on poisoning by strychnia and its salts, arrives at the opinion, that the best antidotes are tannic acid and tannin, chlorine, and the tinctures of iodine and bromine. Chlorine, he maintains, attacks the strychnia even when it is diffused through the system, for he found that in rabbits poisoned with the sulphate of the alkaloid, on being made to inhale chlorine gas in quantity, such as was not sufficient in itself to kill, the convulsions were retarded, and were milder when they occurred; death also was less rapid. The author further observed, that when strychnia was exhibited with pyrogallie acid, the convulsion was retarded for the space of half an hour, by comparison with other experiments in which the alkaloid was given by itself. Professor Bellini believes that this arrest in symptoms is not dependent on the acid acting chemically on the strychnia, but only through the astringent effects produced by the acid on the mucous membrane of the stomach, whereby the absorption of the poison is rendered difficult. The same author, dwelling on the frog-test for strychnia, asserts that this test is not to be trusted, inasmuch as other poisons produce the tetanic symptoms, although in a lesser degree. He adds, in speaking of the effects of the antidotes to which reference has been made, that he trusts his results will have a bearing not only on the treatment of strychnine tetanus, but on traumatic and idiopathic tetanic disease.—*British Medical Journal*, Nov. 21, 1863, p. 552.

155.—BROMIDES IN THE WATER OF THE DEAD SEA.

Some recent analyses of the water of the Dead Sea, taken from near the embouchure of the Jordan, laid by M. Roux before the Academy of Sciences, show the extraordinary quantity of 206 grammes of salts per litre (3,090 grains in 1½ pint imperial). No mineral water is so loaded with saline matter or contains so much bromine. It is probable, says M. Roux, that the enormous proportion of bromide of magnesium which it contains may impart to it some special therapeutical properties. A cubic metre of this water contains more than three kilogrammes of the bromide, and it would be of great interest to try its effects in scrofulous cachexia, inveterate syphilis, rickets, disease of the bones, chronic affections of the respiratory organs, &c.—*Medical Times and Gazette*, Oct. 24, 1863, p. 439.

A SYNOPSIS,

CONTAINING A SHORT ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THE PRECEDING PAGES : SHOWING, AT A GLANCE, THE MOST IMPORTANT INDICATIONS OF TREATMENT PUBLISHED BY DIFFERENT WRITERS WITHIN THE LAST HALF-YEAR. (ARRANGED ALPHABETICALLY.)

AFFECTIONS OF THE SYSTEM GENERALLY.

ACUTE RHEUMATISM.—I find cases of acute rheumatism are far more successfully treated by the free exhibition of lime-juice than any other plan. I have tried the alkaline plan of treatment, so much followed in London, and found it fail. The way I employ the lime-juice is simple:—The patient is directed to take at least eight ounces of it in the day, and no other medicament of any kind whatever is used unless it be opium to procure sleep at night. If the skin is very white, the tongue much loaded, and the perspiration excessive, two drachms of the tincture of sesquichloride of iron are given in addition during the twenty-four hours, and some wine at dinner-time and in the evening. If, during the progress of the case, the hands or feet become unusually swelled or painful, they are merely wrapped up in cotton-wool, which has been freely sprinkled over with tincture of camphor. If the heart become affected, I make no difference in the plan proposed; I continue the lime-juice as if nothing unusual had occurred, with the full confidence that the complication will be evanescent, nor have I yet been deceived. When this accident occurs, mercury, bleeding, or cupping, seem to me to have the effect of aggravating the mischief and of rendering a transient complaint a permanent disease. Lemon-juice is inferior to lime-juice, though, to a very small degree, so that we infer that it is not the particular acid which does the good. (Dr. T. Inman, p. 24.)

EPITHELIAL CANCER.—The caustic application used at Guy's Hospital for the destruction of epithelial growths, is composed of equal parts of chloride of zinc and plaster of Paris. (Mr. T. Bryant, p. 32.)

INFLAMMATION.—The term inflammation has become so very vague as frequently to cause error and confusion. Exudation of the liquor sanguinis is the only morbid phenomenon, which, whenever it occurs, unequivocally characterises an inflammation. Hence, those who continue to use the term inflammation, can only do so with exactitude in the sense of an exudation of the liquor sanguinis. The exudation having taken place, it may either live or die; if it die slowly, with disintegration of tissue, we have ulceration; if rapidly, with chemical decomposition, we have mortification; if it die what may be called a natural death, being broken down, liquefied, and at length absorbed, we have resolution. An inflammation occurring, venesection may do good, when used locally, and the inflammation is superficial and limited, by relieving congestion; but it must never be used under other conditions, and if exudation has occurred, it cannot remove that. The absorption of an exudation by cell transformation demands vital force, and is arrested by *weakness*; hence, the fatality of inflammations in weak persons. The strong

pulse, fever, and increased flow of blood in the neighbourhood of inflamed parts are the results, and not the causes of inflammation, and show that the economy is actively at work repairing the injury; they should, therefore, be encouraged locally by warmth, internally by nutrients. We must support the vital strength of the economy, not by over stimulating, but by attending to those circumstances which restore the nutritive processes to a healthy condition. The truth of these doctrines is shown most forcibly by the result of their application to the treatment of pneumonia. (Dr. Hughes Bennett, *Lancet*, May 30, 1863, p. 600.)

RHEUMATIC FEVER.—From the very commencement of the case give quinine and iodide of potassium—two grains of the former four times a day, with five grains of the latter added to each dose. The presence of acute pain and high febrile excitement does not contra-indicate their employment. The use of quinine is at once suggested by the similarity in many of the symptoms to those of ague. Opium should be given, when necessary, to procure sleep. A second important element in the treatment, is the employment, from the very first, of steam-baths, even when the patient is so helpless that it is impossible to remove him from the bed on which he is lying. These steam-baths relieve the pains, and actually check the profuse sweats. Two bricks, sufficiently heated for the purpose, should be wrapped in flannel thoroughly soaked in vinegar, and laid on two plates, and placed in bed with the patient, whose body-linen has previously been removed. A refreshing acid steam-bath is thus obtained, and the supply of steam may be kept up, if necessary, by renewing the hot bricks. In about fifteen minutes the bed-clothes and plates should be removed, and the patient instantly mopped all over very rapidly with a towel wrung out of cold water, and then should be quickly rubbed dry. If the removal and subsequent replacing of the night-shirt is impossible, from the pain caused, it should be torn open from top to bottom down the back. It may then be removed and replaced with the greatest ease. The author has tried all the other plans of treatment recommended, but invariably comes back to this, finding it the most successful. (Dr. J. B. Nevins, p. 22.)

RHEUMATIC GOUT.—Rheumatic gout is a disease, *sui generis*, totally distinct from gout, and equally so from rheumatism. Rheumatic gout has a history and pathology of its own. In the aggravated and protracted cases the pathological changes are, absorbed fibro-cartilages of the joints, eburnation of the articular surfaces, enlargement of the heads of the bones, with alteration in shape, by the occurrence of interstitial absorption in some parts, and of osseous deposits in others. Foreign bodies of varying consistence and character are often developed both within and without the joints. In the early stages of the disease the capsules of the affected joints are distended with fluid, the synovial membrane is thickened and intensely vascular, and vascular tufts or excrescences exist at the margins of the cartilages. The precise morbid chemical actions which lead to these changes are not known; but we know that the blood does not contain uric acid as in gout. The disease comes on in persons who, from any cause whatever, are in a low state of health, either from inherited scrofula, from syphilis, loss of blood, sexual excess, or over-work. It is, however, most common in feeble, delicate women. In our treatment, the first object should be the sustentation of the general health, and the restoration of tone to the system. The remedies which are most serviceable in rheumatism and gout are of little avail in this form of disease. Colchicum, iodide of potassium, guaiacum, hot baths, vapour baths, and other similar remedies prove mischievous rather than beneficial. They depress and enervate the patient who is already low and exhausted. In the majority of cases, the most successful plan, notwithstanding the acute character of the symptoms, is to administer bark or quinine in combination with small doses of alkalies, and as soon as possible to check the continuance of the enfeebling clammy sweats, by means of the cold shower-bath or dripping sheet. Iron in its different forms, the mineral acids, and cod-liver oil, are useful in many cases. These, however, in some cases are inappropriate; but this may be readily determined by the collateral symptoms present. Thus, if a patient is

better in summer than winter, warmth, by additional clothing, or a warmer climate, is required; if better in cold than in warm weather, the daily use of a shower-bath may be confidently recommended. A patient when having a shower-bath, should stand in hot water. (Dr. H. W. Fuller, p. 17.)

TUMOURS.—The more simple and innocent a tumour, the more nearly it approaches in structure the highly organized portions of the body; the more malignant a tumour, the more it approaches the most elementary or embryonic. In proportion, therefore, to the amount of the cell element in a tumour, may its cancerous tendency be determined; and the greater the proportion of the fibrous or well developed structure, the greater the probability of its nature being innocent or simple. Simple tumours will never do more than separate the parts between and beneath which they are developed; cancerous tumours, as a rule, infiltrate the parts, but never separate them. The skin may be stretched and attenuated by a simple tumour, so as to ulcerate or burst; but it will never be infiltrated with the tumour's elements. The skin covering a cancerous tumour becomes rapidly involved, it seems drawn down to it, and as if glued to its surface; and when ulceration has commenced, the edges are palpably indurated, thickened, and infiltrated with cancerous products. Cancerous tumours have a marvellous tendency to multiplication, and never exist for any period without implicating the lymphatics of the part with which they are connected. In a case of tumour the nature of which is doubtful, from both its local and general conditions, the presence or absence of an indurated absorbent gland (not an inflamed one) will tend more than any thing else to solve the problem. (Mr. T. Bryant, p. 29.)

RECURRING FIBROID TUMOURS.—The recurring fibroid tumour is a connecting link between innocent and malignant growths. They have a constant tendency to return, after removal, either in the same place or in the neighbouring parts. There is nothing distinctive in their external character by which they can be known. Microscopically they possess more of the cell element than the innocent form, and the more rapid the development of a tumour the more cellular its structure. (Mr. T. Bryant, p. 31.)

AFFECTIONS OF THE NERVOUS SYSTEM.

CHOREA.—The indications in the treatment of chorea vary with the case. If there is suspicion of the presence of rheumatic poison in the blood, the alkaline treatment of rheumatism may be safely employed, along with other measures. When the nervous system is debilitated, as it almost invariably is, we must endeavour to promote its more perfect nutrition by generous diet, cod-liver oil, and neurine tonics, as quinine, iron, zinc, and arsenic. Hence the use of out-door exercise, cold sponging, and shower-bath. In the acute and violent forms of the disorder, our chief object must be to put a stop, as speedily as possible, to the violent involuntary movements, and to the attendant sleeplessness, for if these continue long they tend almost certainly to kill by exhaustion. Opiates, combined with diffusible stimuli, are of the most use for this purpose. In some extremely violent cases, repeated inhalations of chloroform, or the subcutaneous introduction of a solution of morphia, may be required. In addition to these sedative means, the employment of wine, or even brandy, often seems to be remarkably productive of good. (Dr. W. S. Kirkes, p. 36.)

CONVULSIONS.—*General Treatment of.*—Therapeutically, as well as pathologically, there is every reason to believe that the means to be employed in the treatment of convulsion (of every kind) are those which exalt, and not those which depress, vital action. The diet, in many cases of chronic convulsive disorder, ought to contain somewhat more than an average quantity of oily and fatty matters, and somewhat less than an average quantity of lean meat; and the action of cod-liver oil is likewise found to be very beneficial in such cases. Considering the large amount of fat contained chemically in brain-matter, this result of experience is borne out by what theory,

independently, would lead us to expect. This fatty matter is combined chemically with phosphorus, and there is every reason to believe that phosphorus is also a suitable remedy in many of these cases. The phosphorus may be dissolved in ether, and a few drops of the solution be given as a dose, the oil being given separately. The phosphorus may be dissolved in the oil; but the compound is so nauseous as to disagree with most stomachs. There is reason to doubt the suitability of belladonna as a remedy in many cases of epilepsy, and other forms of chronic convulsive disorder. Opium produces a turgescence of the vessels of the brain, whilst belladonna probably produces an anæmic condition; hence it is probable that opium is a more suitable remedy than belladonna in many of these cases. Zinc is probably a remedy equally untrustworthy. Alcoholic stimulants are, there is reason to believe, the most trustworthy antispasmodics in the prevention and treatment of convulsion. A glass of port wine given every half hour, with an egg beaten up in the alternate doses, will sometimes produce sleep and quiet in a few hours, and a continuance of the same treatment, only in a less vigorous style, will often produce a rapid cure. (Dr. C. B. Radcliffe, p. 32.)

DELIRIUM TREMENS.—*Digitalis*.—*Digitalis* has been very extensively tried in delirium tremens, but has not quite sustained the reputation it had some time ago. Still it is a remedy of great value. It is useful as a calmative, but has no peculiar power over the disease. Its action is on the nervous system, while at the same time it stimulates the heart and augments its contractility. It is especially indicated in cases where there is threatened inflammation of the brain, as it does not at all increase cerebral congestion. Dr. J. W. M. Miller, p. 38.)

EPILEPSY.—*Inhalation of Oxygen*.—In cases of epilepsy, accompanied by cachexia, and a state of evidently low vital power, a more healthy state of system may be induced by the prolonged trial of inhalation of oxygen. Atmospheric air must be drawn through a glass inhaling apparatus one-third full of solution of peroxide of hydrogen. The solution must be highly charged with oxygen, or the gas is not given out with sufficient freedom. The inhalation must be continued until some sensible effect is produced on the pulse, or on the feelings of the patient, and must be repeated daily for many weeks. (Dr. Ramskill, p. 37.)

[It is not the epilepsy, but the state of cachexia which we may expect to be primarily benefited. Hence, this plan of treatment may prove useful in any state of cachexia not attended by epilepsy. Probably the most likely cases will prove to be those with dark, sallow complexions, indicating deficient elimination as well as debility.—EDS.]

AFFECTIONS OF THE RESPIRATORY SYSTEM.

A CHEAP SPIROMETER.—It is now well known that the "vital capacity," as measured by the spirometer, is a measure more of the strength of the patient than of the physical state of his lungs. So that a man with tubercle actually present in the lung, but with considerable muscular power, will have a larger vital capacity than a man his equal in height, perfectly free from disease, but whose muscular energy is exhausted from only temporary causes, as over-exertion. Still the spirometer is useful in many cases, if only to show impaired vital power of the muscles. A description of a most efficient instrument, and, moreover, very inexpensive and readily made, will be found at p. 48. (Dr. W. E. Bowman.)

APHONIA.—*Direct application of Galvanism to the Vocal Cords*.—In cases of aponia where there is absence of any structural disease, or inflammatory changes, a state of impaired enervation being the sole cause, the local application of galvanism to the vocal cords offers a prospect of speedy cure. Using a magneto-electric machine, let an assistant hold a sponge directly over the thyroid cartilage; and let the operator, by means of a laryngoscope

pass an electric current, direct to the vocal cords. An instrument especially contrived for the purpose is required. (Dr. M. Mackenzie, p. 49.)

ASTHMA.—*The Datura Tatula.*—The *Datura Tatula* is a plant which grows in Malta, and has for some time been used there as a remedy for asthma. The crushed seeds and dried herb, in equal parts, are smoked. In cases of pure asthma it is a remedy which rarely fails to give relief, and it may be used as a preventative when a fit is impending at night. It is less narcotic than stramonium, and rarely causes headache, or leaves any unpleasant dryness of the fauces, or sense of constriction of the pharynx, as stramonium so constantly does. The extract is made with coarsely-powdered tatula, with cold water, exhausted by percolation, and the liquor evaporated to the usual consistence by steam heat. The dose is from half-a-grain to a grain and a half. The tincture is made by digesting for seven days, one part of powdered herb in eight parts of proof spirit. Dose—20 to 60 minims. (Dr. J. F. M'Veagh, p. 55.)

CROUP: DIPHTHERIA.—*To apply a Solution of Nitrate of Silver to the Larynx.*—Attach a short arm, two and a quarter inches long, to a longer one, both of whalebone, tolerably firm, at a bend not quite that of a right angle. Along the upper surface of this attach a piece of india-rubber tubing of the smallest size. Place the solution to be introduced in a watch glass, and suck it up into the tube, preventing its return by compressing the tube with the finger at the proximal extremity. About a quarter of a drachm, or rather more, is a proper quantity. Pass the instrument over the tongue, and then, by withdrawing the pressure of the finger, allow the fluid to drop into the larynx. (Dr. G. Hamilton, p. 222.)

EXCESSIVE BRONCHIAL SECRETION.—*Tannin.*—In cases of bronchitis, and pulmonary congestion, attended with much mucous secretion, and even many cases of phthisis, tannin is a valuable remedy from its power of arresting this secretion. It may be given in pills, as it is disagreeable to take in solution. (M. Woillez, p. 50.)

HOOPING COUGH.—As soon as the whoop declares itself, every three hours give a draught containing half a grain or a grain of sulphate of zinc, and a sixth of a grain of extract of belladonna to two drachms of syrup, in from two to six drachms of water. The doses should be gradually increased until they amount to from six grains to a drachm of zinc, and from two to six grains of the extract of belladonna, according to the age of the patient. If given gradually, these doses will not occasion sickness, nor excite or heat the patient. If there is fever and oppressed breathing, this treatment is inapplicable. (Mr. E. Garraway, Dr. H. W. Fuller, pp. 224, 225.)

Bromide of Ammonium.—One of the best plans of treating whooping cough is the administration of nitric acid in syrup, combined with topical application to the larynx of nitrate of silver. Lately bromide of ammonium has been introduced, and has been found of much use in some cases of the disease. For infants, two or three grains three times a day is a proper dose; for older children, from four to eight grains. The simpler the vehicle the better. (Dr. G. D. Gibb, p. 226.)

IRRITABLE MUCOUS MEMBRANE OF THE THROAT.—Sometimes anodyne and sedative applications are much more successful than nitrate of silver, which is so generally employed in these affections. In a case of this kind, the local use of hydrocyanic acid freely diluted, and, subsequently, of chloroform, acted very beneficially. (Mr. J. Hilton, p. 47.)

LARYNGOSCOPE.—*To Examine the Vocal Cords with the.*—It is now found that it is more convenient that the mirror should be fixed on the forehead of the operator by means of an elastic band encircling the head. It should be attached to a forehead-pad by a ball and socket joint, that the direction of the rays of reflected light may be altered at pleasure without corresponding motion of the head. The patient being seated, place a lamp, giving a brilliant and steady light, on one side of, and a little behind him. By means of the mirror, the operator may readily direct the rays of light through the mouth to the back of the pharynx. The laryngeal mirror having been previously warmed, to prevent its becoming steamed by the breath, is now

passed rapidly over the tongue, and made gently to elevate the soft palate. The objects, as seen in the mirror are, of course, reversed from before backwards. Careful manipulation is often required to see the vocal cords. It is assisted by the patient saying the word "Ah!" and by holding the tongue well forwards with a towel. (Mr. F. Mason, p. 83.)

AFFECTIONS OF THE DIGESTIVE SYSTEM.

ABSCESS OF LIVER.—When we have just grounds for believing that abscess of the liver exists, we ought not to lose a day in evacuating it by puncture, and we are both justified and safe in endeavouring to hit upon it with a trocar when deep-seated. There is very little danger in thrusting an exploring trocar into the liver; indeed, Dr. Cameron states that he has never seen the slightest ill result. It is folly to wait until there is an attempt at pointing, as many die without any attempt at this, the liver having been converted into a mere purulent sac. The ribs will become denuded and carious in such cases, while the surgeon has waited for weeks to see the abscess point, the man dying worn out by fever and diarrhoea. A trocar, with canula of medium size, is preferable to either scalpel or lancet for opening the abscess. When the abscess seems pretty well emptied, the canula should be carefully fastened in by twine passed through perforations in its rim, and also by broad sticking-plaster over it, leaving a small central opening. (Dr. J. C. Cameron, p. 62.)

[Frerichs, in his work on "Hepatic Disease," lately translated for the New Sydenham Society, advocates the same treatment. He considers "the prominence of the false ribs and the obliteration of the intercostal spaces quite sufficient to justify an operation." Frerichs considers that the abscess should not be opened by simple puncture, without the use of means previously to produce adhesion of the two layers of peritoneum. Perhaps the most reliable is Begin's method. He places the patient on the bed with the upper part of the body bent forwards, and makes an incision down to the peritoneum, which he slits up upon a grooved director, and then dresses the wound with charpie. After three days the liver is found to have contracted firm adhesions to the margin of the wound, so that the abscess may be opened without apprehension.—EDS.]

HARE-LIP.—The operation of hare-lip, when performed at any period of life after the sixth week, is likely to be successful. The preference should, however, always be given to about the third month of life. In the operation the following points are the most important:—First, to separate the lip freely from its attachment to the gum; secondly, to make a free section of the edges of the abnormal lip; and thirdly, to bring the parts accurately in apposition by the interrupted suture. The edges of the wound should be pared "from above downwards, leaving the inverted flap adherent at its labial border. When this is done, and the upper edges of the divided lips have been brought together, the lower flaps may be connected by a fine suture; and, if proved to be too long, they may be curtailed; sufficient material being left to fill in the gap, which is too often the result of the other forms of operation." In cases of double hare-lip, both sides should be simultaneously treated. (Mr. T. Bryant, p. 88.)

HEMORRHOIDS AND PROLAPSUS.—The ligature may be almost entirely done away with in the treatment of hemorrhoids and prolapsus, by the use of the clamp invented by Mr. Henry Smith. This instrument is somewhat in the shape of a pair of scissors, and the mass to be removed is firmly held between the blades, which meet by two flat surfaces; it is then removed by a knife, and the raw surface touched with nitric acid or the actual cautery; the parts are well oiled, and the affair is finished. The disease is removed at once, and the patient is not subjected to the irritation and danger of a ligature strangulating several portions of mucous membrane for a week or more. Nitric acid should be used to the raw surface in the slighter cases; but if the diseased mass be extensive, or the parts extraordinarily vascular, the actual cautery

should be employed. If there is much suffering, the application of pounded ice gives great relief. It is an improvement to have the inferior surface of the blades of the clamp made rather concave, as a larger portion of the diseased tissue can be thereby secured. (Mr. Henry Smith, p. 93.)

TYPHOID DYSENTERY.—In this disease, as it occurs at Shanghai, typhoid symptoms commence within a few days, along with great prostration and brown tongue. Wine, brandy, ammonia, camphor, and opium, seemed in many cases useless. Quinine when retained appeared to do good, but only in some cases would it remain on the stomach. As there is in such cases a decided increase in the alkalinity of the blood, along with alkaline urine, Dr. Henderson gave hydrochloric acid, generally along with some bitter tonic and laudanum, and with great success. The use of the same acid in all cases of fever, attended with a very low typhoid state, will be found an admirable adjuvant to other means of treatment. (Dr. J. Henderson, p. 60.)

AFFECTIONS OF THE URINARY ORGANS.

DIABETIC SUGAR.—*New Test for.*—When a few drops of tincture of iodine are added to diabetic urine, the colour produced by the tincture disappears completely at the end of a few seconds. The power of the urine in producing the discoloration of the tincture is in proportion to its density. (MM. Trousseau and Dumontpalier, p. 69.)

FOREIGN BODIES IN THE BLADDER.—Such an object as a piece of bougie, is best extracted from the bladder by an extremely small and slender lithotrite. These are made of such calibre, that the blades can hold between them an object of considerable size, and yet the calibre of both may not be so great as not to pass readily along the urethra. (Prof. Fergusson, p. 99.)

IRRITABLE BLADDER.—*Use of Iron in Certain Cases of.*—There are certain cases in which the urine is of very low specific gravity, and deficient in urea. The bladder seems to miss the accustomed stimulant, and we have much vesical pain and irritability. Citrate of ammonia usually relieves this state of irritability. The form in which it is prescribed is one drachm of sesquicarbonate of ammonia with one drachm and fifteen grains of citric acid, mixed with six ounces of water. An ounce of this mixture to be taken three or four times a day. The suggestion and the explanation owe their origin to Dr. Prout, who states that he believes the citrate of ammonia may be converted into urea when taken in large quantities. (Mr. R. H. Meade, p. 69.)

ONANISM.—The habit of onanism is extremely difficult to give up. The best suggestion I can offer is this:—Let a strong solution of iodine be painted over the whole of the skin of the penis every night, and if that does not make the organ too sore to touch, apply in the same way a strong blistering fluid. In almost every instance the continuance of the habit has been thus entirely prevented. (Mr. J. Hilton, p. 106.)

OPERATIONS ON THE URINARY PASSAGES.—*The Endoscope.*—By means of the endoscope, an instrument invented by M. Desormeaux, and used by him in the hospital Necker, at Paris, the whole urethral tract of mucous membrane from the meatus to the bladder may be inspected by the eye, and any alteration at once detected. The incision of stricture is greatly facilitated. The operator sees the parts it is his intention to divide, can follow the progress of the blade through the tissues, and watch every step of the procedure, as if it were performed on the surface of the body. The endoscope may likewise be applied for the examination of the nares, pharynx, and rectum, and it is adapted for the inspection of all the cavities of the body usually inaccessible to the eye. The instrument consists of a lamp, the light of which is, by a series of mirrors and lenses, conveyed into a lateral metallic tube. The accessory apparatus varies according to the part to be inspected. (M. Desormeaux, p. 104.)

RETENTION OF URINE FROM STRICTURE.—An instrument likely to prove

of great use in these cases, is described by Dr. Watson, of Edinburgh. It is in the stem the size of a No. 2 or 3 catheter, and hollow, but tapering off towards the point, and solid. The opening into the catheter part of the instrument is situated on the curve. The point of this instrument passes easily through a very narrow stricture, which the further passage of the instrument dilates, thus rendering unnecessary the continued use of extremely small bougies. By the catheter being combined with the bougie, no change of instrument is required to draw off the urine. It is impossible to have a catheter as fine as the extremity of this instrument, for it becomes too weak if made hollow. The whole is made of the best steel. It may be procured of Young, Edinburgh. (Dr. P. H. Watson, p. 96.)

URETHRITIS.—*Tincture of Iodine.*—At its commencement urethritis is confined entirely to the extremity of the urethra and the fossa navicularis. The inflammation may be arrested at once by the local application of tincture of iodine. A small piece of cotton-wool should be firmly affixed to the extremity of a common probe, and having been impregnated with tincture of iodine, should be inserted gently into the urethra. It should be passed to the depth of about one inch. In mild cases one application is sufficient, in more aggravated forms more may be required. (M. Oscar Max, M. Boinet, p. 103.)

VARICOCELE.—*Radical Cure of.*—Having placed the patient under chloroform, and the vas deferens being isolated, pass a needle armed with a wire ligature through the scrotum, behind the diseased veins, and let it perforate the scrotum on the inner side. Now let the needle be inserted again, at the second opening, the wire passed in front of the veins, and so out at the first puncture. No skin is included, but merely the veins and some areolar tissue. The wires must now be twisted together so as to compress the veins, and then cut off short and left permanently; or, if this is not desired, by untwisting their ends the wires may be withdrawn. This proceeding may be repeated lower down. The pain of the operation is merely that which results from the two punctures in the skin. The operation is in itself very easy to perform, and does not even necessitate any confinement to bed. (Mr. B. Holt, p. 101.)

VULCANIZED INDIA-RUBBER BOUGIES.—Vulcanized india-rubber bougies are perfectly flexible and unchangeable. They cause so little distress that they may be retained in the urethra during a journey without inconvenience. They are quite unaffected by moisture. The instruments in common use made of tissue, coated with oil mixed with litharge, are soon deteriorated by humidity. (Prof. Nelaton, p. 99.)

AFFECTIONS OF THE BONES AND JOINTS, ETC.

DISLOCATION OF THE THUMB AT THE METACARPO-PHALANGEAL JOINT.—The cause of difficulty in reducing these dislocations is a misplacement of the tendon of the long flexor of the thumb, which passes between the two heads of the short flexor, then in front of the joint to be inserted into the base of the second phalanx. A misplacement of this tendon is not a necessary condition of the dislocation, but an accident depending on the force and direction of the violence that produced it. It is possible to diagnose this condition at once, for if the tendon remains *in situ*, it would be perceptible, stretching over the end of the metacarpal bone, and drawn away from the first phalanx by the altered position of that bone. It is, of course, possible at once to restore the bones to position by dividing the tendon; but this is usually unnecessary, for it may be restored to position by manipulation. The wrist being fully bent, so as to relax the long flexor tendon, let the surgeon take the thumb in one hand and abduct it from the fingers, while with the other hand he steadies the metacarpal bone. He then is to rotate the thumb, so as to make the tendon retrace its course forwards and inwards around the lower end of the metacarpal bone, using the first phalanx as a

lever in this intention. If this do not succeed, let him hyper-extend the first phalanx, so as to stretch the flexor tendon, rotate the phalanx *outwards*, and then carry it round the *inner* tubercle of the metacarpal bone, so as to dislodge the tendon from between the ends of the bones. This was first discovered, owing to the malposition of the tendon being visible in a case of compound dislocation. (Mr. J. C. Wordsworth, p. 79.)

EXCISION OF THE KNEE-JOINT.—The operation having been carried, in the usual way, to the point where it is necessary to detach the soft parts from the bones to the required extent in their posterior aspect, do not here use the knife, but let the finger do this by vigorous pressure. Thus the artery is not only secured from injury, but it remains undisturbed in its bed, and the popliteal space is not encroached on, or its anterior wall broken up. (Mr. R. G. H. Butcher, p. 73.)

HIP-JOINT DISEASE.—If, in disease of the hip-joint, we can prevent the femur being forcibly dragged upwards by muscular spasm, we can generally manage more easily the inflammatory action. The mode of preventing such upward pressure, is by a counteracting downward force, and the only method of applying this is by elastic extension. A splint expressly designed for this purpose will be found described at p. 71. (Mr. R. Barwell.)

RUPTURE OF ADHESIONS IN STIFF JOINTS.—*Sudden* action is the best means of overcoming any considerable amount of false ankylosis, particularly if the tissues be extensive and old. All scars of the skin should be loosened previous to sudden rupture of the adhesions. Myotomy is seldom needed. (Mr. R. Barwell, p. 266.)

AFFECTIONS OF THE SKIN, ETC.

ANÆMIC SPHACELUS OF FINGERS AND TOES.—A singular case is related by Dr. Myrtle, of Harrogate, of mortification of the little finger, and threatened similar state of the other fingers and the toes, arising chiefly, if not entirely from their bloodless condition: probably not from diseased arteries, but entirely owing to feebleness of the circulation, from want of power in the *vis a tergo*. There was a generally lowered state of vitality. He remarks that digitalis would have probably been most useful, from its power as a cardiac stimulant or tonic. (Dr. A. S. Myrtle, p. 120.)

CLAY AS A DRESSING TO SURFACES YIELDING FOUL AND MOIST DISCHARGES.—Clay, softened down in water, and freed from all gritty particles, is one of the most energetic, yet most innocent, of palliative applications to surfaces yielding foul and moist discharges. It should be laid layer by layer over the affected part, to the thickness of about a line, and renewed occasionally. The irritating secretion is rapidly absorbed by the clay, and the contact of air prevented. (Dr. Schreber, p. 120.)

CARBUNCLE.—A better plan than the crucial incision is the free application of potassa fusa to the centre of the carbuncle, until an eschar is fully formed. A third of the diameter of the indurated and inflamed mass being destroyed, a strong solution of iodine in collodion applied to the circumference of the mass has an excellent effect in destroying the erysipelatous element in the disease. A dressing of resin ointment, mixed with an additional quantity of turpentine, or some camphorated spirits, should be used daily over the surface. (Mr. A. Prichard, p. 117.)

ECZEMA.—*Constitutional Treatment of.*—"There are few diseases more curable than even severe forms of eczema." Constitutional treatment is always necessary. Purgatives are frequently required at the commencement, but they must be regarded merely in the light of adjuvants to other treatment. If the tongue is loaded, the appetite bad, the liver torpid, and the bowels costive, small doses of grey powder, in combination with rhubarb and quinine, may be administered with excellent effect. Sometimes occasional doses of calomel, alone or in combination with scammony, may be given with great advantage when there is much cutaneous inflammation. In persons or chil-

children who are scrofulous, or debilitated from insufficient or innutritious food, or from previous disease, cod-liver oil and iron are our sheet-anchors, all other treatment being omitted. Some of the most severe cases may be cured by the systematic administration for a couple of months of cod-liver oil and syrup of the iodide of iron. The oil should also be well rubbed into the body two or three times a day. Many cases are owing to poor breast milk, or from prolonged lactation. Another class of cases occurs in patients who are, with the exception of the eruption, in a good state of health, or even plethoric in appearance. In these cases, purgatives, very moderate and unstimulating diet, and abstinence from stimulants, are required. There are, then, three classes of remedies which may be relied upon, viz., the preparations of arsenic, and sulphur, and alkalies. Arsenic (Fowler's solution) is too often suspended or even abandoned at the very moment its curative powers are coming into play. In the case of children at the breast, the arsenic should be given to the mother. The most effectual way of procuring the full alterative effect of sulphur, is to prescribe a course of one of the natural mineral waters which contain sulphur, as those of Harrogate and Moffatt. Alkalies are of most use when there is a tendency to acidity of the stomach, and to the deposit of lithates in the urine, or to gout or rheumatism. Liquor potassæ, largely diluted with water, is, perhaps, the best alkaline preparation. (Dr. T. M'Call Anderson, p. 110.)

Local Treatment.—The first point in the treatment of every eczematous eruption, without exception, is to remove all the crusts which have formed. With the aid of a poultice, composed of bread crumbs and hot almond oil, this is a very easy matter. If the surface is *acutely inflamed*, or there are complaints of burning heat in the part, a very soothing application is a cold potato-starch poultice, a small quantity of a powder containing camphor, being previously sprinkled over the surface. Or emollient ointments may be employed, such as the simple or benzoated oxide of zinc ointment, cucumber ointment (Neligan's), or cold cream. A mixture of powdered oxide of zinc and glycerine, in the proportion of half-an-ounce of the one to two ounces of the other, forms, likewise, a very soothing application. If the disease has become chronic, and there is *infiltration* of the skin, some form of potash must be applied. In slight cases, or where the rash is extensive, common soft soap may be used. A more elegant preparation is the liquor potassæ, which may be painted over the eruption, night and morning, with a large brush. It should be diluted considerably for mild cases. *Tarry preparations* are chiefly of use in the declining stages of eczema, where the infiltration and itching are moderated. The oil of cade is the most elegant preparation of tar,—it is only manufactured at Aix-la-Chapelle, and is the product of the dry distillation of the wood of the *Juniperus oxycedrus*. It is well, however, not to employ tar alone, but to combine it with a potash solution. In small local patches of eczema, the most successful plan is generally to blister the part with cantharides, or if so severe a remedy is not required, to apply, night and morning, a little tincture of iodine. (Dr. T. M'Call Anderson, *Medical Times and Gazette*, July 11, 1863, p. 33.)

Weak Alkaline Lotions.—In cases of pure uncomplicated eczema, a good plan of treatment is to keep the part continually moist with lint saturated with a weak alkaline lotion (3 ss. carb. of soda to eight ounces of water). It is a *sine qua non* that the lint should never be allowed to dry, otherwise it only increases the mischief. (Dr. J. Wallace, p. 115.)

Arsenic.—The most frequent cause of the failure of arsenic in the cure of the non-syphilitic forms of eczema, is the exhibition of the remedy in too large doses, and at intervals too distant.—(*Lancet*, August 1, 1863, p. 124.)

ERYSIPELAS OF THE FACE.—Apply a solution of two parts of glycerine to one hundred parts of common collodion. It forms an excellent application in cases of erysipelas of the face. The addition of this small proportion of glycerine is sufficient to impart considerable suppleness to the collodion, and to prevent its dragging upon and cracking the delicate tissues to which it is applied. (Dr. W. A. Smith, p. 249.)

PROLAPSIS.—[The affection known as lepra is now classed with psoriasis

under the name of psoriasis, there being no real difference between the two.—EDS.] In some cases, especially those in which the disease has re-appeared without evident cause, a remedy of great use is the tincture of cantharides. It should be given at first in doses of four or five drops in water, and gradually increased, if no serious symptoms arise, to twenty-five or thirty drops a day. A case of lepra of eighteen years' standing, was cured by its means. (M. Cazenave, p. 117.)

SKIN DISEASES.—*Gouty Diathesis*.—In all cases of skin disease, where there is reason to suspect the gouty diathesis, the administration of liquor potassæ in sufficient doses, well diluted with water, should never be omitted. Even when there is no reason to suspect this, potash, in many cases, acts with admirable effect. Not only is eczema rapidly benefited by it, but the more obstinate forms of psoriasis yield as soon as the system begins to feel the debilitating effects of the remedy, the scales falling off in abundance. There is a point at which it is desirable to stop the potash, and to give a tonic, quinine or arsenic, according to circumstances, when the disease will rapidly improve. Tar ointment is not to be depended on alone, its use should be preceded by a course of internal medicine, whether potash or arsenic. (Dr. Ross, p. 108.)

SMALL-POX.—*To Prevent Pitting after*.—Pitting after small-pox may almost infallibly be prevented by the following treatment:—About the fifth to the seventh day, when the small vesicles, somewhat depressed in the middle, surrounded by an inflamed margin, can be seen on the top of each pimple, and certainly before the contained matter assumes the appearance of pus, puncture each vesicle with a needle dipped in a solution of nitrate of silver. The solution should be of the strength of 30 grains to 3 j. of water, and the best needle is the flat sharp needle, commonly used for twisted sutures. This needle carries with it enough of the solution for each vesicle, and its shape favours a slight discharge as the instrument is withdrawn. In twenty-four hours the result is very apparent, the vesicle has dried up, no itching, or unpleasantness remaining. (Dr. F. Bowen, p. 123.)

Mr. Higginbottom, of Nottingham, tried the plan followed on the Continent by Bretonneau and Velpeau, for preventing the pitting of small-pox, viz., first to puncture the vesicles, and then apply the solid stick of nitrate of silver to each pustule. This completely aborted the pustules, and prevented, of course, the consequent pitting. He subsequently found that the application of a concentrated solution all over the face effected the same object perfectly even when the pustules were not punctured. (Mr. J. Higginbottom, p. 124.)

ULCERS ABOUT THE TOE-NAILS.—That form of ulcer depending apparently upon pressure of the toe-nail upon the flesh, may be rapidly cured by inserting a little dry sesquichloride of iron between the nail and the protruding flesh, and powdering the latter over with the same substance. A bandage should be applied over all. Next day the exuberant flesh will be found to have acquired the hardness of wood, suppuration speedily ceases, and the place is well after two or three applications. (Dr. Billon, p. 110.)

VENEREAL AFFECTIONS.

SYPHILIS.—*Calomel Fumigation*.—The best and simplest way of using mercurial fumigation is the following:—Procure a small basin which will stand heat, half fill with boiling water, and keep boiling by a spirit lamp placed underneath. Over the basin place a circular plate, on which place the calomel (about half-a-drachm at the furthest). Let the patient sit on a cane-bottomed chair, with this apparatus beneath it, and enveloped in a kind of mole-skin cloak, which should, of course, cover both chair and lamp. After sitting from ten to twenty minutes let him get into bed, still enveloped in the cloak, and remain quiet for two hours. On this principle I have treated nearly all my syphilitic patients, whether with indurated or non-indurated, pustular or epithelial chancre. I have never had more than a tenderness of the gums,

however long the treatment has been persisted in. Many of the worst cases of secondary eruptions are rapidly cured by this plan. (Mr. A. Fleischmann, p. 162.)

AFFECTIONS OF THE EYE AND EAR.

AMAUROSIS PRODUCED BY TOBACCO.—It has been for a long time vaguely admitted that amaurosis is sometimes produced by the excessive use of tobacco, but no writer has more than loosely broached the idea. Mr. J. C. Wordsworth, of the London Ophthalmic Hospital, now states that within the last three years he has "seen a considerable number of cases of amaurosis, apparently produced by the influence of tobacco." Mr. Wordsworth's position is, however, assailed by one or two opponents of note. So the matter still remains a query. (p. 155.)

ATROPIA: ITS ACTIONS AND USES.—Atropia, when applied locally, in solution (without spirit), is not a local paralyser as commonly supposed, but it appears rather to quicken the contraction of the parts to which it is applied. Applied directly to the smaller arteries atropia constricts them (Jones), and this effect many continue for many hours. It hence, probably, causes relaxation of the tissue of the iris, by causing constriction of the arteries entering it. In an atropised eye the vision is clearer with distant than with near objects, this shows that the lens has receded and approached the retina, and is caused by a relaxation of the erectile structure of the ciliary processes, from the constricting action of the atropia. This theory of the turgescence or emptiness of the vessels of the iris, causing, respectively, the contraction or dilatation of the pupil, explains why we have wide pupil so frequently in atonic and exhausting diseases, in aneurism of the chest and neck, impeding the passage of blood into and through the carotid. Worms and diseases of the belly in children dilate the pupil and impair the sight, probably by reflex action through the sympathetic nerve, exciting the radial fibres of the iris, and contracting the cerebral arteries. (Dr. A. Fleming, p. 253.)

CONJUNCTIVITIS.—*Tannin.*—The astringents ordinarily in use, are, during the acute stages of conjunctivitis, inadmissible, in consequence of the irritation produced. Tannin is perfectly free from any irritating effects, yet it is one of the most powerful astringents known. (Dr. G. R. Sheraton, p. 138.)

ECZEMA OF THE EXTERNAL AUDITORY PASSAGES.—The ear must first be carefully syringed to remove the exudation; when the walls of the canal, instead of exuding, are scaly, a few drops of olive oil should be previously introduced. After all this effete matter is removed, paint the walls of the meatus with a solution of potassa fusa of the strength of ten grains to the ounce. If the action be very severe it must be checked at once by the injection of tepid water. When the drum participates in the disease, inject a solution three times weaker than the above, night and morning. The rule should be, the weaker the application the oftener it should be applied—the stronger the more seldom. If a stronger solution be used to the walls of the meatus, care must be taken that the camel's-hair brush is not too wet with it. (Dr. T. McCall Anderson, p. 157.)

EYE.—*Singular Effects of the Calabar Bean on the Ciliary Muscle and Circular Fibres of.*—The Calabar bean, as its name indicates, is procured from west Africa. It is found to have the power of causing contraction of the circular fibres of the iris and of the ciliary muscle of the eye. It is best first to prepare an extract, and from this to make solutions of various strengths (of the strongest solution one minim should correspond to four grains of the bean). A case of paralysis of the circular fibres of the iris and of the ciliary muscle of the right eye, the left being perfectly normal, has afforded opportunity for fully testing this singular action. Not only was the pupil of the healthy eye rapidly contracted, but even the paralysed pupil, which, before the application, measured three and a half lines, was contracted to two-thirds of a line (the size of a pin's head) within half an hour after the application of the solution. Of course myopia was produced in both eyes. The effect of the drug gradually passed off, ceasing entirely in the paralysed eye in five

hours, and in the healthy eye not until after six days. The bean may be procured of Bell & Co., of London. (Dr. Soelberg Wells, p. 144.)

The cases in which we may expect this remedy to produce the most beneficial results, are those in which paralysis of the ciliary muscle occurs as a consequence of long continued debilitating disease. Cases of this kind occasionally follow attacks of typhus or other fevers. The dimness of vision which forms a sequel of diphtheria appears to be due to this cause. In cases of ulceration of the margin of the cornea, leading to perforation, or even when prolapse of the iris has just occurred, the contraction of the pupil induced by this agent might prove serviceable by drawing the iris away from the circumference. In cases of retinitis with photophobia, it may be advantageously employed to diminish, by contraction of the pupil, the access of light to the retina, and this more especially when the pupil has been dilated for the purpose of ophthalmic examination. (Dr. A. Robertson, p. 148.)

FORCES TO FIX THE EYE DURING AN OPERATION.—If the eye is held by a single point of conjunctiva, the eye-ball may have two different kinds of motion. There is a considerable degree of motion from side to side, and also rotation round the point of conjunctiva as a centre. Both of these objections are remedied by holding the conjunctiva at *two points, one on either side of the globe*. This can be accomplished readily by a pair of forceps with two pair of points instead of one, and distant from one another $\frac{1}{8}$ th of an inch. (Mr. J. F. Streetfeild, p. 129.)

OBSTRUCTED LACHRYMAL DUCT.—The mere occasional probing of a strictured duct is not sufficient. It is, moreover, so tedious and so very disagreeable that patients rebel against it. When there is really that degree of structural change which unequivocally calls for instrumental treatment, the wearing of a style is the less irksome, the more beneficial, and the quicker plan. It is a great modern improvement to introduce the style through the canalicular entrance into the lachrymal sac, instead of the old plan through the skin on the face. The duct should be first explored with a tapering steel sound, and then with a small silver wire; should there be much stricture and some difficulty in reaching the floor of the nose, do not withdraw the wire, but cut off the upper part and turn the end down on the eyelid with pliers in the form of a little hook. After a few days a larger style may be introduced. The styles should, at the upper end, be curved into a hook, which is intended to rest just over the eyelid; they should be kept of different lengths, for in each application the foot should reach the palatine process of the superior maxillary bone forming the floor of the nose. There is then no risk of the style slipping down, nor of the upper end producing irritation from pressure. There is great liability, in passing a style, to penetrate the lachrymal bone rather than in line of the duct. This causes failure, and must be avoided by an accurate knowledge of the anatomy of the parts. If the stricture prove so tight that it cannot be penetrated by the probe or the style, it must be divided by the style knife, which must be pressed down until resistance is overcome. (Mr. H. Walton, p. 136.)

PANNUS, AND OTHER CORNEAL LESIONS.—*Snydectomy.*—In cases of vascular and fleshy cornea, not yielding to other means, the operation of removal of a large zone of conjunctiva and sub-conjunctival tissue may be tried. The sub-conjunctival tissue must be carefully dissected off so as to expose the surface of the sclera. No trace of cellular tissue or of blood-vessels should be left. A pair of scissors, curved on the flat, one of the rings of which has a contrivance for holding a sponge, is the best instrument for the purpose. The vessels on the cornea should be freely scarified, and their ends, if projecting, cut off with scissors. After the bleeding has somewhat subsided, the exposed sclera and ulcerating portions of the cornea should be touched with a strong solution of nitrate of silver. Much irritation, but no inflammation follows the operation. The blood-vessels on the cornea speedily atrophy, and the infiltrated blood and lymph become absorbed, and a transparent cornea appears three or four days after the operation. A thick plastic material covers the exposed sclera. In from one to two months all trace of a loss of the conjunctiva has disappeared. (Dr. C. Bader, p. 132.)

Syndectomy versus Inoculation.—In a case in which both corneæ were completely vascular and villous, no portion of clear healthy cornea remaining, one eye was inoculated with pus from the eye of a child suffering from severe purulent ophthalmia. Severe inflammation, followed by a copious discharge of pus, ensued. The action induced was allowed to run its course. Some weeks after this the report states: "The granulations of the lids have disappeared, and a smooth surface is seen. The cornea is bright and transparent." In the other eye syndectomy (or peritomy) was performed, the zone of conjunctiva removed being $\frac{1}{4}$ th of an inch in width. The results were satisfactory, but not so much so as those of inoculation in the other eye. The operator, Mr. Lawson, concludes that inoculation by purulent matter is a far more efficient proceeding than syndectomy, and equally safe. (Mr. G. Lawson, p. 131.)

PROLAPSED IRIS.—*Calabar Bean.*—When there is prolapsus of the iris owing to a wound near the margin of the cornea, the application of an extract or strong solution of Calabar bean will prove of service, by inducing contraction of the pupil, and so withdrawing the prolapsed part. (Mr. T. Nunneley, p. 149.)

PURULENT OPTHALMIA.—At the very commencement of the case it is sufficient to apply a cold lotion to the eyelids, and sponge with tepid water. The following ointment should be applied to the edges of the lids with a brush, to prevent them sticking together: citrine ointment, one drachm; olive oil, four drachms; lard to one ounce and a half. When the purulent secretion is established, an alum lotion (four grains to the ounce) should be applied beneath the lids every hour. It is, however, an excellent plan to have sticks of nitrate of silver, melted with certain proportions of nitrate of potash to diminish the cauterizing effects. These dilute caustic points should be wiped over the palpebral conjunctiva, the lid being everted for the purpose. A little solution of common salt applied immediately afterwards will neutralize any excess of nitrate of silver. In severe cases this application should be made once or twice a day for a time. The use of stronger nitrate of silver is to be condemned. (Mr. E. Hart, p. 140.)

If the weak solutions of nitrate of silver, or alum, have failed to arrest the case at the commencement; or it has been neglected so that the lids are red, swollen, and shining, from the tenseness, and the child hot, fretful, and restless, the best plan is to apply a leech to each upper lid, and administer a grain of calomel at once. Fomentation of the lid should be continued some time, to encourage bleeding. The swelling will thus be soon reduced so that the cornea may be examined. (Mr. J. C. Wordsworth, p. 139.)

STAPHYLOMA.—*Abscission.*—In reducing a staphyloma, the aim and object is to form a dense, fibrous, elastic, moveable bulb, filled with fluid, flattened upon its anterior surface, and of such a size as admits the ready adjustment of an artificial eye, and its free movement. The patient being placed under the influence of chloroform, and the staphyloma freely exposed by a wire speculum, pass through the mass, equidistant, a series of four or five small needles, having a semicircular curve, and at such points as the lines of incision are intended to traverse. By this plan, besides other advantages, the sudden escape of the lens and vitreous humour is prevented, after the anterior part of the staphyloma has been removed. The anterior part of the staphyloma must now be removed by a pair of small probe-pointed scissors; an elliptical piece should be removed, just within the points where the needles have entered and emerged. The needles, armed with fine black silk, are then to be drawn through each in its turn, and the sutures carefully tied so as to approximate as closely as possible the divided edges of the sclerotic and conjunctiva. The operation is now finished, wet lint must be applied to keep the parts cool. The sutures should be removed in a few weeks, if they do not come away spontaneously. (Mr. G. Critchett, p. 125.)

STRABISMUS.—The following is a brief description of the operation for strabismus as performed at Moorfields:—The lids are kept apart by the ordinary wire speculum. The surgeon then makes a small opening in the conjunctiva with scissors over the lower edge of the insertion of the rectus tendon, taking hold of the membrane, and often of the deep fascia at the

same time, with the forceps, which, if the eye be turned inwards, may be slid (closed) along the surface from the edge of the cornea till they reach the proper spot for the opening; thus the eye need not be held by an assistant. The fascia being opened, the lower edge of the tendon is exposed *close to its insertion*. If the fascia has not been opened at the first snip, it is in its turn seized by the forceps at the same point and divided, without interference with any other structure; the object being simply to divide the tendon on the ocular side of the hook *at its insertion*. The blunt hook is now passed through the aperture in the subconjunctival fascia, and behind the tendon, which it renders tense by being made to draw on it slightly forwards and outwards. The next step is the introduction of the scissors. Mr. Bowman insists on the propriety of carefully introducing the points of the scissors, not much separated—one along the hook behind the tendon, the other in front of the tendon, and between it and the conjunctiva, and of dividing the tendon *by successive snips* from the lower to the upper edge. If the tendon is divided by one cut the operation is more roughly executed, for, as the blades have to be opened more widely, the opening in the conjunctiva and fascia must be larger, vessels of a larger size may be divided, and the tendon may be pushed off the hook before the points of the scissors: if this happen, of course the hook must be reintroduced. The surgeon completes the operation by making a small counter-puncture, by bulging the conjunctiva on the end of the hook in the situation of the upper border of the tendon after its division, and by then snipping it with the scissors; the object being to allow any of the effused blood immediately to escape, instead of diffusing itself over the sclerotic. The subsequent ecchymosis then never need extend beyond the seat of the operation, and should disappear within a few days. It is highly important to carefully ascertain the comparative strength of the external and internal recti muscles in both eyes, as, according to the relative strength of these, Mr. Bowman determines upon the necessity of operating on one or both eyes. (Mr. G. Lawson, p. 135.)

Strabismus, New Operation for.—Dr. Armstrong Todd has for several years operated for strabismus by a new method. He makes a horizontal incision in the conjunctiva, high up under the upper lid, and then a sub-conjunctival division of the tendon. By this means the upper lid completely covers the incision in the conjunctiva, and excludes the air from the divided extremities of the tendon. The after-appearance is much better by this plan, that when the operation is done from below, under the lower lid. The following is the mode of proceeding:—Introduce the wire speculum, seize with a fine claw forceps, and draw downwards the conjunctiva of the upper and inner angle as it reflects from the posterior surface of the lid upon the eyeball. Then, with a curved scissors, make a horizontal incision about a quarter of an inch or three-eighths long, and with another fine claw forceps draw out the areolar tissue and sub-conjunctival membrane through the first opening, the forceps still holding the conjunctiva, which may now be released, and the scissors again taken to divide these tissues down to the sclerotic; a small curved director is then introduced and directed at first towards the back of the eye and then drawn forwards and downwards so as to pass between the muscle and the eyeball. This is readily accomplished, and the tendon can be felt and sometimes seen lying upon the director. A small curved bistoury is then passed down the groove, and with the act of withdrawing is made to divide the tendon, the point being seen as it passes upwards behind the conjunctiva, which must be carefully preserved from being cut; the director is then removed with its point pressing against the back of the conjunctiva, and will show if the muscle be completely divided. (Dr. A. Todd, p. 133.)

ULCERATION OF THE CORNEA.—Iridectomy.—In cases of rapid destructive ulceration of the cornea, where the eye will soon be irretrievably lost, perform iridectomy at once. A case is related in which all pain ceased three hours after the operation, and the man was soon well. The pain before the operation had been acute, and the ulceration progressing most rapidly. The performance of such an operation, which must, to some extent impair the eye,

we can, however, only consider justifiable in extreme cases. (Mr. R. B. Carter, p. 142.)

MIDWIFERY AND THE DISEASES OF WOMEN, ETC.

EMBOLIA IN LYING-IN WOMEN.—At a period more or less closely approaching delivery, a woman may be seized with fainting, *intense* pain in one or more limbs, followed by swelling, arrest of pulsation, loss of heat, gangrene, and perhaps death. After death clots are found in the main arteries of the limbs affected. In another class of cases we witness sudden faintness, irregular action of the heart, distressed breathing, quickly-increasing collapse, and rapid death. In these cases it is found that the pulmonic circulation is almost exclusively concerned, and clot-obstructions are discovered in the right heart and pulmonary arteries. The condition of the blood in the puerperal state is favourable to the production of clots in the uterine veins, and veins of the lower extremities. But imperfect contraction of the uterus, and the formation of putrilage in the uterine cavity are often the immediate antecedent conditions of puerperal thrombosis. It has been noticed that in many cases some mental emotion, or sudden exertion, has seemed to be the exciting cause of the affection. (Dr. R. Barnes, p. 195.)

IS IT A BOY OR A GIRL?—Queen bees lay female eggs first and male eggs afterwards. In the human female conception in the first half of the time between menstrual periods produces female offspring, and male in the latter. When a female has gone beyond the time she calculated upon, it will generally turn out to be a boy. (Dr. F. J. W. Packman, p. 165.)

OBSTETRIC FORCEPS.—It is a good plan to place a rack and spring on the handle of one of the blades, that of the other being tapered so as to be received into the furrows made for it. By this means the pressure on the child's head may be increased or diminished at will, and all necessity for tying the blades with tape to prevent them sliding, during the absence of a pain, is obviated. (Dr. W. Gayton, p. 181.)

OVARIOTOMY.—Before proceeding to any operation, the surgeon must be satisfied, by careful and repeated examination, that the tumour is ovarian, and, if possible, that it is not cancerous. This is, however, sometimes impracticable. At the present time surgeons rarely find an obstacle to the completion of the operation in the adhesions about the ovarian sac, but either break through them with the écorseur or the hand, or divide them with a knife or scissors after tying them, if found vascular, with silver wire. The details of the operation will be found at p. 211. (Mr. I. B. Brown.)

PLACENTA PRÆVIA.—Supposing the patient is pulseless and much exhausted from the loss of blood, the proper plan is to remove the *placenta at once, and then to plug the vagina*. Then give a large dose of laudanum (forty minims) in brandy. Support in every way the temperature of the surface, and if the action of the uterus be feeble, promote it by the electric current or ergot of rye. It is very doubtful whether any advantage is gained by removing the child, as the patient may be unable to bear the shock which it produces, partially owing to the pressure being taken off the great venous trunks of the abdomen, which are only imperfectly filled with blood. The plugging of the vagina is advised as a precautionary measure. (Dr. E. W. Murphy, p. 177.)

[Dr. Murphy does not here mention Dr. Barnes's valuable suggestion of separating the placenta from the cervical zone merely of the uterus, which is preferable in many cases, to its total separation.—EDS.]

PLUGGING THE VAGINA.—The linen or other substances of which the plug should be made, ought to be saturated with some astringent solution. When this is done, their introduction becomes extremely difficult and painful, owing to the corrugation of the parts produced. By using a common glass speculum, all trouble is at once removed, as the vagina can be packed without any difficulty to the practitioner, or suffering to the patient. By means of the speculum the os, in cases of abortion, may be plugged with a piece of sponge, which is very difficult to accomplish without it. (Dr. E. P. Bennett, p. 185.)

PREMATURE LABOUR.—Premature labour may, with great facility and safety, be induced by the application of nitrate of silver to the interior of the cervix, just within the os. No unpleasant results whatever ensue. (Prof. Giordano, p. 169.)

PUERPERAL CONVULSIONS.—*Chloroform.*—The treatment of puerperal convulsions by venesection arises from erroneous views of the pathology of the affection. Anti-spasmodics, the most powerful of which is chloroform, are more appropriate. Chloroform should be given at once, and continued until complete anæsthesia is produced, and the delivery then expedited as much as possible with safety to the mother and child. Bleeding has been used, because it was thought that convulsions depend essentially on an increased determination of blood to the brain, whereas, neither the proximate nor the remote cause is to be found in a hyperæmic condition of the brain. If, however, the cerebral veins, as an effect of the convulsions, become so distended with dark blood that there is a tendency to apoplexy, then blood-letting is necessary. (Dr. J. M'Nab, p. 171.)

SECALE CORNUTUM.—The secale is very liable to be attacked by an acarus, particularly when damp. It should be procured in substance, whole; it should then be carefully dried and put into a well-stoppered bottle with a piece of camphor. The camphor seems to have the effect of preserving it from the acarus. A new parcel of the drug should never be placed in the bottle along with the old. About two drachms of the drug should be boiled in eight ounces of water for about five minutes, and given in three or four doses, with twenty minutes interval, and as hot as possible. If these precautions are attended to disappointment will rarely follow. (Dr. J. W. Beck, p. 176.)

SORE NIPPLES.—Having carefully dried the parts with a soft muslin handkerchief, apply a solution of gutta-percha in chloroform (3j of gutta-percha tissue to 3iij chloroform), so as to completely surround the nipple, and cover all abrasions. Three or four coatings should be applied. The film formed is firm, elastic, and harmless, and should it rub off is very easily replaced. During the act of suction (only) a box-wood shield with a calf's teat may be used, until all abrasions are perfectly healed. (Mr. W. H. Castle, p. 194.)

UTERINE DISPLACEMENTS.—The stem of any pessary intended for insertion into the uterine cavity, should never be so long as the uterine cavity itself, otherwise the resulting pressure on the fundus uteri causes inflammation. The instrument used by Dr. Graily Hewitt for maintaining a displaced uterus *in situ*, is a globular air pessary, surmounted by a stem of ivory. It maintains its position when distended with air. Dr. Routh's instrument consists of a coiled wire bell-spring, covered with caoutchouc, and having a small gutta-percha disc, about two inches from its upper end. Upon the disc, with the coiled wire within the organ, the uterus rests, while the lower end is secured by tapes or a napkin from ejection. The spring maintains the organ *in situ*, while it allows full movement of the uterus with the movements of the body. Dr. Barnes's instrument is a small cup, which supports the uterine neck; this cup is supported on a curved stem, so small as not in any way to disturb the vagina. The end of the stem is suspended by elastic bands to an abdominal belt. This instrument is intended only for the treatment of simple prolapsus, the other two for prolapsus with displacement. Dr. Barnes remarks, that there are two forms of prolapsus; one arising from absorption of fat and other tissues, which occurs in the decline of life, so that the uterus, wanting support, falls down into the pelvis. It is to this, which is purely a mechanical disorder, that mechanical support is most applicable. The second form occurs during the child-bearing period, and depends on congestion and enlargement of the organ. Rest, and consequent removal of congestion, are of most use here, though occasionally supports may be required as a temporary thing, as by their use the congestion which necessitated them is often relieved. The use of such instruments must never banish from our minds the necessity of proper constitutional treatment. (Dr. G. Hewitt, Dr. Routh, Dr. Barnes, pp. 187, 188.)

UTERINE PESSARIES.—A form of pessary is thus constructed:—A circular

disc of metal, perforated centrally, is surmounted by a short tube of the same material, closed at the free end. This stem is passed into the uterine cavity, the os resting on the upper surface of the metal disc. Another piece of the instrument is now passed into the interior of the first; this second piece is lengthened in form, and adapted to the curve of the vagina, and is itself fixed externally to a wire frame which is accurately adapted to the abdominal walls. *Dr. Simpson's pessary* is almost precisely similar to this, except that it is in one piece. It renders the uterus quite immovable. (*Dr. D. E. Wilkie, p. 216.*)

Medicated Utrine Pessaries.—The butter obtained from the *Theobroma Cacao* nut possesses most valuable qualities as a material for medicated pessaries. Though very firm, it has the property of becoming fluid at a low temperature. There are few uterine diseases in which the use of medicated pessaries may not be advantageously used. They are more especially valuable in acute and chronic inflammation of the cervix uteri; in internal metritis, with exfoliation of the lining membrane of the uterus; in slight prolapsus or procidentia; in cancer; in all varieties of ovaritis; as well as in many affections of the female bladder. They shield the diseased and irritable surface from contact with the vaginal walls, and such drugs as opium, belladonna, and conium, are useful in relieving pain. In some diseases of the uterine cavity, attended with copious muco-purulent discharges, or with hemorrhage, the greatest benefit may be obtained from the local use of astringents. Once or twice a week, a pessary made of tannin and cacao butter, about two and a half inches long, and of the size of an ordinary stick of nitrate of silver, may be introduced up the canal of the uterus, and left there. Other substances, as alum, sulphate of zinc, dried sulphate of iron, &c., may be employed in the same manner. When sanguineous or purulent discharges have long been present, the os and cervical canal will always be found sufficiently patulous to permit of the introduction of these astringent rods. (*Dr. T. H. Tanner, p. 218.*)

ULCERATION OF THE OS AND CERVIX UTERI.—*The Action of Nitrate of Silver locally applied.*—Nitrate of silver differs from potassa fusa in that its action is strictly limited. It is very active and yet manageable, and the surface left is healthy and heals kindly. These properties render it especially applicable for the treatment of most of the ulcerative diseases of the os and cervix uteri. To produce its full effect it should be used most firmly, and with a certain degree of friction and rotation. By this means it penetrates below the surface, and an eschar of sufficient depth can be readily obtained. But in its ordinary form, nitrate of silver is wholly unfit for this kind of service, in consequence of its great brittleness. All mixtures with other salts, with the design of obviating this brittleness, weaken the nitrate, and render it unfit for use as an escharotic. A good plan to produce a firm and tenacious caustic cylinder, is to mix up with the fused material a small quantity of long asbestos fibres. A better plan even than this, is to have the sticks cast with a small central perforation extending the whole length of the cylinder. This is very easily accomplished, by passing a polished steel pin through a hole in the upper and lower halves of the mould. A caustic holder is required especially adapted for these cylinders. It consists of a small socket of silver, bisected and carried on the halves of a slender metallic support, grooved internally, and externally cut to a spiral thread, on which a nut works to and fro. The cylinder of caustic drops about one-eighth of an inch into this socket, and a platinum pin, exactly like a common pin, is passed through it and between the halves of the stem. The little nut is now worked upwards, and the pin being secured by its pressure, a perfectly firm and unbreakable cylinder of caustic is held by the instrument. (*Mr. R. Ellis, p. 220.*)

UTERINE POLYPI.—*New Method of Extirpating.*—Occasionally very large uterine fibrous polypi are met with, so fixed in the pelvis that neither by finger nor instrument is it possible to reach the pedicle. In such cases the proper plan is to seize the point of the polypus by the vulsellum, draw it down, and then make free and deep transverse cuts in the body of the

tumour, by a pair of long and sharp-pointed Cooper's scissors. It is found that when the capsule and the subjacent adherent fibrous layers are divided, the fibres of the body of the polypus separate from each other in large bundles when traction is applied, so that the polypus may be so thinned that it becomes easy to reach the peduncle. (Prof. Simon, p. 207.)

UTERUS.—*State of the Internal Surface of, after Delivery.*—It was formerly supposed, and still is, by many, that after delivery or miscarriage the muscular tissue of the uterus is denuded of mucous membrane, and left bare. This is quite erroneous. At no time, during pregnancy or after it, is the decidua thrown off in mass, or the muscular tissue denuded. At whatever time miscarriage takes place, the separated decidua always leaves a layer covering the internal surface of the uterus. After delivery, the persistent layer of mucous membrane is found, as in early pregnancy, to be thicker at the site of the insertion of the placenta, than elsewhere. (Dr. J. Matthews Duncan, p. 204.)

MISCELLANEA.

ACONITINE.—MM. Liégeois and Hottot describe the following process for preparing aconitine. It is believed to be of English origin, and will, with a slight difference, be incorporated in the forthcoming *British Pharmacopæia*. The bruised root of *Aconitum napellus* is digested for eight days in alcohol slightly acidulated with sulphuric acid. The alcoholic solution is then pressed out, and the alcohol distilled off. A small quantity of green oil and an aqueous extract are thus obtained. The green oil is separated, and the extract further evaporated to the consistence of a syrup. It is now dissolved in water, and neutralised with magnesia, and then shaken up with ether. The ethereal solution on evaporation yields the rough aconitine. This is again dissolved in water acidulated with sulphuric acid, and decolorised by means of animal charcoal. Ammonia is then added to precipitate the aconitine, and the mixture boiled, after which the alkaloid is collected on a filter and dried. This part of the process is repeated once, or twice if necessary, in order to obtain the alkaloid with as little colour as possible. It is eventually precipitated with a very slight excess of ammonia, and dried at a low temperature. Aconitine so obtained is completely soluble in ether, and possesses remarkable activity. The alkaloid received from the Continent, and commonly sold in England, is of very inferior quality. A correspondent administered three grains to a dog without producing the smallest discomfort to the animal. Two milligrammes, or little more than three-hundredths of a grain, prepared by MM. Liégeois and Hottot by the above process, killed a frog in four minutes, while it required a grain and a half of the most active that could be found in commerce to produce the same effect. The *British Pharmacopæia* is said to make considerable use of alkaloids; and as, in consequence of their greater cheapness, most of these will be imported from abroad, it will be incumbent on pharmacæutists to test their activity by experiments on living animals, or to procure the alkaloids from reliable English sources. (*British Medical Journal*, Nov. 21, 1863, p. 549.)

CALABAR BEAN.—The following is the formula for the preparation of the tincture of Calabar bean: Take of the kernel, in the form of fine powder, $\frac{3}{4}$ i.; rectified spirit, $\frac{3}{4}$ ij. Place the kernel and one ounce of the spirit in a carefully-covered vessel, and allow it to remain for forty-eight hours. Pack in a percolator, pour in what spirit may be left in the vessel, and add the remaining ounce of spirit. When this has ceased to escape from the percolator, pass as much more spirit through as may be required to obtain two ounces of a golden yellow tincture. Five minims of this tincture is a good dose with which to commence the administration. This appears to possess the activity of three grains of the kernel. The dose may be trebled without pushing the physiological action to any extreme. By evaporation in a vapour bath an extract may be obtained. Experiments so far seem to point to the conclusion that the drug will prove of service in all hyper-æsthetic conditions

of the spinal cord, especially in such cases as tetanus, centric or excentric, and some cases of epilepsy. There is also a decidedly sedative action on the heart, hence a feeble pulse is always a contra-indication to its administration. When pretty large doses are given, a strong, rapid, hard pulse is soon softened. In the treatment of neuralgic affections, with nervine irritation, it is likely to prove of service. (Dr. T. R. Fraser, p. 146.)

CARBOLIC ACID.—*Therapeutic Uses of.*—Carbolic acid is a caustic when undiluted, when diluted it is astringent and disinfectant. A solution in glycerine is very useful in relaxation of the mucous surfaces; it should be applied by means of a brush or sponge. Its use is indicated in polypi of the nostrils, in ozæna, and in all putrid discharges from the mouth, throat, nostrils, ears, rectum, and vagina. It is a valuable topical application in diphtheria, and to carbuncle and ill-conditioned sores, being used in different degrees of solution, according to the character of the sore. It may be applied to fistulæ not communicating with the rectum by means of the little wax tapers used in lighting gas. In hemorrhoids the action of carbolic acid is mainly to corrugate, and therefore to obliterate, the sac of the pile; it also coagulates the contents. When applied to fœtid ill-conditioned ulcers, a solution of one part of acid in forty parts of water should be used. It soon induces a purulent instead of a sanious discharge. It removes all disagreeable putrescent smell from gangrenous sores. When it is wished to employ it in a less diluted state than the aqueous solution, and yet not in its full strength as a caustic, the following solution should be used:—two drachms of carbolic acid in one drachm of liquor potassæ and half a pint of water. (Mr. Turner, p. 256.)

CHLOROFORM.—Out of fifty-one cases of death from chloroform thirty-eight declared their danger by sudden stoppage of the pulse; twenty-five of these showed in addition, as a chief sign, pallor of the countenance. In two deaths the symptoms have occurred thus—sudden vomiting, instant cessation of the pulse (food had been taken just before). In six cases congestion of the face was the most marked symptom. In eight cases cessation of the breathing was the most noticeable symptom. What is to be done in cases of threatened death? There is only one perfect stimulus to the failing heart, the stimulus of aerated blood, and the only means of producing this is by the excitation of respiration. Artificial respiration may be practised by one of the two postural methods—that of Dr. Silvester, or that of Marshall Hall; or by mouth to mouth insufflation, or by galvanism of the phrenic nerve. Before any means for artificial respiration are adopted, the tongue should be well drawn forwards. A great error would be committed if a patient *in extremis* were wheeled round to an open window. Dr. Richardson has well established the value of warmth as an adjunct to the respiratory efforts. (Dr. Sansom, *Medical Times and Gazette*, Nov. 7, 1863, p. 481.)

CLIMATE.—*Egypt.*—The grand advantage of the Egyptian climate in winter is its daily serenity and sunshine; however strongly the wind may blow, a sheltered nook, after 9 or 10 a. m., will always be a sunny one. To those, therefore, with susceptible air-passages, it is a matter of no little importance to be aware of this circumstance, and able at the same time to have certain simple measures at their own command, which will modify, in a great degree, the deleterious influence of the weather. There can be little doubt that the climate of Upper Egypt, Nubia, and the Desert, from their superior dryness, are better suited for the generality of tubercular patients than that of the Delta and the cultivated tracts of the low country. Much, however, depends on the morbid changes which have taken place, or are in course. But Nubia appears to me the climate, of all in the Nile Valley, between Alexandria and the second cataract, that is most likely to agree with phthisical patients, to many of whom the sharp and bracing air of the desert is too strong. (Dr. A. L. Adams, p. 231.)

Sudden Change of Climate. When invalids who are leaving England for the winter, push rapidly to their destination, the liver and skin, which were already in England relieved from the stimulus of our mild summer heat, are called violently and suddenly into action. The result is diarrhoea, bilious attacks, skin irritation, boils, &c. Diarrhoea is so common that few North-

erners escape, and it is universally and erroneously attributed to change of food, to wine, and to such influences. The transition should not be so rapid, several weeks being spent on the journey. An excellent station is Fontainebleau, thirty miles south of Paris. England should be left about the end of September, but the winter destination is not ready for invalids until the end of October. (Dr. J. Henry Bennet, p. 260.)

CORROSIVE SUBLIMATE POISONING.—*Gold Dust and Iron Filings*.—A solution of corrosive sublimate is at once decomposed by a mixed powder of gold dust and iron filings, the mercury being deposited on the gold and the chlorine on the iron. In cases of poisoning by corrosive sublimate, the stomach having been emptied as thoroughly as possible, it is well to administer this powder. Sufficient gold may be readily procured from two books of gold-leaf, and fresh iron-filings may be very readily made in almost any house in a few minutes. (Dr. C. Johnson, p. 243.)

IODINE AS A DEODORISER.—The vapour of iodine has the power of rapidly and completely destroying any organic matter present in the air of an apartment, and rendering it again fresh and agreeable to the smell. The iodine may be placed in the ornamental vases on the mantel-shelf of a room: but in extreme cases it should be placed on a plate and volatilised by the heat of a candle. This discovery is likely to prove most valuable, especially in small-pox. In rooms occupied by small-pox patients, organic matters float largely in the air, rendering it most offensive. When the air is greatly charged with organic matters the smell of the iodine is for a long time imperceptible. This plan is quite as effectual as the liberation of free ozone, it is indeed in principle the same. (Dr. B. W. Richardson, p. 248.)

LIQUOR BISMUTHI.—Mr. Schacht, of Clifton, has succeeded in preparing a solution of bismuth which is uniform in composition, stable, miscible with water or other fluids without precipitation, and efficient in small doses. The solution is quite transparent, with a slight alkaline reaction, and although it only contains eight grains to the ounce of solution, a fluid drachm is a full dose. We are not told how the solution is effected, nor whether without decomposition of the trisnitate of bismuth, and the results in practice remain to be seen. It has, however, been highly recommended by Dr. S. Martyn, Senior Physician to the Bristol General Hospital. (p. 239.)

NITRATE OF SILVER.—The new preparation "lunar caustic points, perfectly tough" is worthless as an application in surgical cases. It is not nearly so soluble as the old brittle stick of nitrate of silver, and has scarcely any power in checking and subduing inflammation, and is useless in the cure of wounds. From the experience I have had daily of the use of the nitrate of silver for so many years, I am convinced that no remedy of equal power in subduing external inflammation and healing wounds has been discovered, if properly applied, although many remedies have been recommended in lieu of it. (Mr. J. Higginbottom, p. 247.)

OPIUM POISONING.—If the patient be seen early, sulphate of zinc, followed by draughts of warm water when it begins to act, is the most appropriate emetic. A scruple to a drachm should be given according to the case. It is less irritant than most other emetics, and acts also as an astringent, thereby hindering further absorption. An interval of fifteen or twenty minutes usually intervenes before emesis is produced. It should at first be given as little diluted with water as possible. In an emergency, salt and water, or mustard and water, may be substituted, and their operation accelerated by irritating the fauces with a feather. When a larger quantity has been taken, or a greater interval than an hour has elapsed, the stomach becomes insensible to the action of emetics, and mechanical means for removing the poison should at once be had recourse to. (Dr. W. R. Hatrick, p. 241.)

Galvanism.—A most effectual manner of arousing the energies of a patient becoming comatose from opium, is the use of galvanism. In a child of seven months, it was found that its application across the cheeks aroused it most. Cold affusion had lost its power. (Dr. J. W. Ogle, p. 246.)

PERMANGANATES AS ANTISEPTIC AGENTS.—There are conditions in which the internal and external use of the permanganate of potash affords results

far transcending those of any other agent. While bark and the mineral acids are more potent for good in the blood putrescence of fever, carbuncular disease, blood scurvy, and pulmonic gangrene, the permanganates are infinitely more efficacious when the surfaces are involved; as in cancers, and foul ulcers of the skin, and putrid state of the mucous membranes of the mouth, nose, throat, stomach, and intestines, and vagina, and uterus. While the chlorides, creosote, and carbolic acid, &c., displace one bad odour, they themselves bring others scarcely, to some persons, less offensive; but the permanganate simply deodorises and freshens. The only odour perceptible is that pleasing impression which arises from the smell of recently bleached clean linen. Theoretically speaking, we have here a simple hyperoxygenation and dispersion of the offending elements by the powers of ozone; but, be the precise nature of the action what it may, the practical results cannot be doubted, for they are invariable and instantaneous; so that, against the putrefactive horrors of cancer, mercurial salivation, necrosis, and certain affections of the liver, intestines, and uterus, no agent can approach the freshening influence of the permanganate of potassa, a preparation as beautiful in appearance and as mild in taste, as it is certain and beneficial in its action. (Dr. D. Nelson, p. 261.)

PHENIC ACID.—*Action on the Human Skin.*—Immediately after the application of a thin coating of the pure acid, a sharp smarting is felt, which lasts about an hour. The epidermis becomes wrinkled, and in a short time the formation of a white body may be remarked wherever the acid has touched. This white coloration results from the action of the acid on albumen; it disappears by degrees, and is replaced by some congestion, which lasts about twenty days. This congestion presents all the characters of an intense inflammation, being attended with redness, heat, and swelling. If a small piece of the epidermis (which appears raised as in a blister) be stripped off no serum escapes. The epidermis becomes detached by degrees, and when the exfoliation is complete a brown spot remains, which testifies for a long time to the energetic action of the acid. After a number of experiments on his own arms, and the arms of his friends, M. Lemaire states that the smarting never lasts longer than an hour. The redness of the skin endures about twenty days, but the inflammation never extends beyond the part to which the acid has been applied. *Action on the Mucous Membrane.*—The action of the pure acid on the mucous membrane is, of course, analogous to its action on the skin; acute smarting, shrivelling up of the epithelium, and a milky coloration being observed. The smarting does not last so long as on the skin, especially on such membranes as produce an abundant secretion; and the epithelium quickly returns to its normal condition. *Action on the Respiratory Organs.* From experiments on mice and horses, the author concludes that the higher animals may breathe the diluted vapour of the acid for a long time without discomfort or danger. (*British Medical Journal*, Nov. 21, 1863, p. 552.)

QUININE.—*Adulteration of by Cinchonine.*—To detect the adulteration of quinine by cinchonine is very easy:—Dissolve about a grain of the salt to be examined in two drachms of water, with the addition of three drops of dilute sulphuric acid, in an ounce phial. Then drop into the solution five or six drops of solution of ammonia. A precipitate will form whichever alkaloid is present. Now add two drachms of sulphuric ether, and shake the phial well. If the precipitate dissolves, it is *quinine*; if it remains undissolved, it is *cinchonine*. (p. 240.)

SNAKE BITES—BITES OF RABID DOGS.—The following plan of treatment is very successful in Australia in the case of snake bites, and Dr. Moriarty thinks it very suitable for cases of bite by mad dogs:—1st. The wound, if recent, should be well sucked. 2ndly. When possible, ligatures should be applied. 3rdly. The wound and parts around the wound should be excised and freely bathed, so as to encourage the bleeding. 4thly. Caustic or ammonia may be afterwards applied, the selection to depend on the nature of the bite. 5thly. Stimulants (whiskey) to be liberally given. 6thly. Half a teaspoonful of strong ammonia, and double this quantity of the tincture

of asafœtida to be taken every quarter of an hour in a wine-glassful of water. 7thly. When the bleeding has ceased, the wound should be poulticed with ipecacuanha powder. 8thly. If convenient or suitable the actual cautery may be used. 9thly. In order to point out the value of stimulants, we may remark that old Indians in Canada will, with impunity, suffer themselves to be bitten by a rattlesnake, the most obnoxious of all the ophidia, after drinking a pint of whiskey. 10th. The good of all or any of these remedies will in a great degree depend on their immediate application. (Dr. Berncastle, p. 224.)

SOLUTION OF BROMINE.—Bromine, in the form of vapour mixed with air, is of great value as a purifier of the air of hospitals where erysipelas, gangrene, small-pox, &c., exist. It is, however, soluble with great difficulty, except in the presence of bromide of potassium, about 160 grains of which should be added to four ounces of distilled water to dissolve one ounce troy of bromine. The solution is a very dark red, and evolves strong fumes of bromine. (Dr. J. L. Smith, p. 248.)

TARTAR EMETIC PLAISTER.—The following plaister produces a much more manageable eruption than the ointment in ordinary use:—White pitch, 40; black resin, 20; yellow wax, 20; turpentine, 5; olive oil, 5; and tartar emetic, 10 parts. To be mixed into a plaister mass, and spread, while hot, on strips of calico, like ordinary strapping. This revulsive is of great use in chronic bronchitis and phthisis. (M. Mialhe, p. 250.)

THE ACTUAL CAUTERY.—The actual cautery rapidly cools down, is larger than required, and creates much vapour and smoke, which conceal what is going on, and is, moreover, a formidable looking affair. M. Nélaton proposes and practises a new method of cauterisation, using a fine jet of flame, produced by the combustion of ordinary gas, for the purpose. The small flame is projected from a thread-like tube, and may be handled as readily as a pen or a stick of lunar caustic. (M. Nélaton, p. 250.)

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THE
RETROSPECT
OF
PRACTICAL MEDICINE AND SURGERY,

BEING
A Half-Yearly Journal,

CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND PRACTICAL
IMPROVEMENT IN THE MEDICAL SCIENCES.

EDITED BY
W. BRAITHWAITE, M. D.,
LATE LECTURER ON MIDWIFERY AND THE DISEASES OF WOMEN AND CHILDREN
AT THE LEEDS SCHOOL OF MEDICINE; ETC.,

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PRACTICAL MEDICINE.

DISEASES AFFECTING THE SYSTEM GENERALLY.

ART. 1.—ON THE PREVALENCE OF FEVERS IN LARGE TOWNS.

By DR. ROBERT CHRISTISON, F. R. S. E., Professor of Materia Medica in the University of Edinburgh.

[Dr. Christison, in his address on Public Health delivered before the National Association for the promotion of Social Science, at Edinburgh, agrees with the leading London authorities on the subject of fever, in the four forms of fever peculiar to this country. Speaking of Relapsing (inflammatory) fever, Dr. Christison observes that the infection is not a virulent one, and that the progress of this fever by infection may be entirely prevented.]

Healthy persons in communication with fevers of this kind accumulated in an hospital ward, or lying in less numbers in their own small unventilated chambers, are seized almost certainly if they remain long enough, and are not shielded by a previous attack. But from a single case of this fever, in a middle-sized, well-aired room, it is never communicated to the healthy. With these facts before us, of which I could furnish pointed proof, were there time, it is evident theoretically how such a fever is to be extinguished. The favourite panacea of the present day for the prevention of all fevers—thorough drainage—is not the remedy. The best drainage leaves untouched the real foundation of the disease—viz., penury pent up in airless dwellings. But provide work for the unemployed, obtain from them in return due ventilation and cleanliness, and the epidemic will soon vanish. First, the new condition of things will make its infectious power harmless, and ere long it will cease to arise by spontaneous generation.

The carrying out of this theory into practice is, however, a formidable difficulty. How is work to be obtained in hard times for the unemployed? And, still more, how are the labouring classes to be taught the habit of ventilating their apartments? Success must depend on the resources, faith, and energy of a sympathising community, and upon the convictions of its suffering portion. But, at all events, we have a fundamental principle of social economy firmly established—that no epidemic of inflammatory fever can long withstand employment of the workman and fresh air in his house.

Typhus, simple typhus, nervous fever, low fever, putrid fever—a disease so familiar as to need no description here, though very different in form from the last—presents many agreements in those characters which give them both interest in the eyes of the cultivator of social science. It has its epidemic visitations; and fearful ones we have seen all over Britain, especially in this city, where there have been no fewer than five during the last forty-five years—the last and worst having occurred between 1847 and 1849. It puts on the epidemic shape only at periods of want among the labouring classes. However it may arise in the first instance, it spreads by infection; but its infection is not intense, hence inadequate space and ventilation make it innocuous in that way, in so great a degree as to have misled good observers, and made them doubt its infectious property. So far typhus agrees with inflammatory fever. But, *firstly*, it is far more deadly, one in ten being the probable average of deaths from it. *Secondly*, it occurs at all times, and not merely at epidemic seasons. Seldom does a week pass in a large town like Edinburgh, without one or more deaths from typhus appearing on the register. *Thirdly*, in these non-epidemic periods it is met with among the rich as well as the poor, and perhaps in as great a proportion to their relative numbers.

Nothing is known of the origin of typhus in non-epidemic periods. Infect-

tion will not explain the occurrence of such fevers—not those, at least, which show themselves in the easy ranks of life. With the most ordinary care, cases of it in that circle do not reproduce it in the exposed; whence, then, could it reach themselves by communication, who had not had any exposure to it within their knowledge? Neither does it originate, at least generally, in faulty drainage, or other sources of foul air. In the metropolis, indeed, it is at present a prevailing opinion—much in favour also, as I understand, in this Association—that the sources of foul air are likewise the sources of typhus; but such a rule will not apply in Edinburgh. Foul air undoubtedly favours the spread of both typhus and inflammatory fevers in their epidemic visitations; for, setting aside its possible operation in other less ascertained ways, it implies confined air, want of ventilation, and therefore concentrated infection. I do not mean to deny that foul air of some kinds may sometimes simply cause typhus; but there must be better proofs than now exist, before this can be admitted as the constant or even general fact. Foul air will not account for the origin of the scattered (sporadic) cases of typhus in non-epidemic times. As little will air, merely foul, account for either the rise or fall of epidemics. Every physician of experience in this city has repeatedly seen in a family a solitary case of well-marked typhus, which no skill could trace to foul air in any shape, or from any source. No one ever heard here of the spread of typhus in the epidemic form being referable to an increase of foul air, apart from the resulting concentration of infectious effluvia from those ill with the disease. We have had within the last few years an instance of the fall of a great epidemic, the worst on record, without any commensurate amelioration of air, drainage, or other branch of cleanliness. This incident is so remarkable in its circumstances as to deserve careful consideration.

The annexed table shows the variations of fever in Edinburgh year by year since the century began, as derived from the records of the Royal Infirmary:

12 mon. to Dec. 31, 1800, .	329	12 mon. to Dec. 31, 1832, .	1394
..... 1801, .	161	 1833, .	878
..... 1802, .	156	 1834, .	690
..... 1803, .	232	 1835, .	826
..... 1804, .	323	 1836, .	652
..... 1805, .	175	 1837, .	1224
..... 1806, .	95	 1838, .	2244
..... 1807, .	110	 1839, .	1235
..... 1808, .	111	 1840, .	782
..... 1809, .	186	 1841, .	1372
..... 1810, .	143	 1842, .	842
..... 1811, .	96	 1843, .	2080
..... 1812, .	108	9 mon. to Oct. 1, 1844, .	3339
..... 1813, .	75	12 mon. to Oct. 1, 1845, .	683
..... 1814, .	87	 1846, .	693
..... 1815, .	96	 1847, .	3688
..... 1816, .	105	 1848, .	4693
..... 1817, .	485	 1849, .	726
..... 1818, .	1546	 1850, .	520
..... 1819, .	1088	 1851, .	959
..... 1820, .	638	 1852, .	691
..... 1821, .	327	 1853, .	574
..... 1822, .	355	 1854, .	168
..... 1823, .	102	 1855, .	201
..... 1824, .	177	 1856, .	180
..... 1825, .	341	 1857, .	132
9 mon. to Oct. 1, 1826, .	450	 1858, .	111
12 mon. to Dec. 31, 1827, .	1875	 1859, .	183
..... 1828, .	2013	 1860, .	152
..... 1829, .	771	 1861, .	122
..... 1830, .	346	 1862, .	136
..... 1831, .	758	 1863, .	196

From this table it appears that after 1816, for a period of thirty-six years, the continued fevers of Edinburgh, of which typhus formed the largest proportion, seldom fell short in the Edinburgh Infirmary alone of 500 in any one year. In 1818 and 1819, the annual average reached 1300; in 1827 and 1828, nearly 2000; in 1837, 1838, and 1839, nearly 1600; in 1843 and 1844, above 2700; and in 1847 and 1848, 4200. It then suddenly fell next year to about 700, and kept that average for five years. But in 1854 it sank again abruptly to 170; since then the annual fevers have never exceeded 200. The average for the last ten years has been 158. Last year there were only 136; and this year, which ends for the hospital statistics on 1st October, there were 196. Until 1860, the statistics of the Infirmary did not distinguish the several forms of fever from one another. In 1847 and 1848, however, the annual average of typhus could not have fallen short of 2500; and after that it must have been between 400 and 500 until the year 1854. But in 1860 the number was accurately ascertained to be 67; in 1861, it was 50; in 1862, 14; and in 1863, 74. I am further indebted to the medical officer of the city, Dr. Littlejohn, for the fact that the deaths from typhus for the whole town registered in nine months since 1st January, have been 18. According to the average mortality of typhus, this number indicates 240 cases of typhus for the present year.

Now, about the period of this decrease, the drainage of that part of the city where the chief nests of fever always lay was improved. But the decrease began decidedly before the commencement of that reform. I am informed by our superintendent of drainage, that the works for improved drainage of the worst part of the city—the Grassmarket, Cowgate, Canongate, High Street, and the closes communicating with these—were only begun in 1854, were far advanced only in 1858, and are now all but finished. Neither can the rapid decrease of fever be ascribed to any satisfactory improvement in the cleaning of the lanes and houses of the working classes. I believe that long prior to the decrease, our police had done as much for the cleansing of the fever districts as the impracticable structure of the streets or lanes there, and the incorrigible habits of their occupants would allow. And as for the home habits of these people, no such improvement of them has taken place in my time as will explain any other change of circumstances in their social economy.

Here, then, is a discovery which remains to be made in social science. Why is it that typhus, which had been almost a perpetual pestilence in Edinburgh for a third of a century, has been of late wearing itself out, and last year almost flattering us with its extinction? The cause has certainly not yet been discovered. My own strong impression is, that the secret will be found to be connected with the theory which has been much canvassed in the present day, the successive changes of type or constitution of epidemic diseases. But as this is a favourite theory of my own, I shall not here insist on it farther than by warning all inquirers into the origin of zymotic diseases in foul miasms, that they run great risk of ascribing to these, and the removal of these, fluctuations in the prevalence of such diseases which are often far more probably owing to a more recondite cause—a change in epidemic constitution. In the meantime, the experience of the physicians of Edinburgh presents us with the precept, also derived from the experience of other great towns, though, perhaps, nowhere else so categorically, that typhus never can prevail in the epidemic form in face of employment for the working-classes and ventilation of their dwellings.

In the present line of inquiry, there is no occasion for noticing any other fever than enteric fever. Gastric fever, the only other sort arranged under the head of continued fevers, is not generally acknowledged at present by systematic authors. If it be a separate fever, it is one which, according to my own observation, occurs chiefly in the easy and wealthy ranks of life, and owes its origin mainly to high living and over-indulgence in the excitements of society, whether of the nature of business, study, or amusement. We have little to do with it therefore. Enteric fever is very differently circum-

This disease, variously called dothineritis, entero-mesenteric fever, enteric typhus, typhoid fever, but most conveniently Enteric (bowel) fever, is the most deadly of all forms of continued fever. It was first distinguished from others in Germany in 1763, and was first accurately described in France by Bretonneau in 1812. It began to be distinguished from others in London about the close of the first quarter of the present century, and first of all by Dr. Bright in 1827. A little later, a few cases occurring in hospital here attracted great attention. It has since increased in both cities, as well as in Britain at large. In London it has been common for many years, and is sometimes the commonest of all forms of fever. In Edinburgh its course has been very singular, and deserves careful attention with reference to English opinion as to its cause, and the sanitary conclusions to which that opinion leads.

For many years after Bright wrote about it as a frequent fever in London, we saw it seldom here—never in the proper inhabitants of the city, but only in persons brought ill with it from Linlithgowshire or Fife, or who had quite recently left these counties. It began to be studied here with great care on its being recognized in the Infirmary in 1847, in a German lad only six months from his "Vaterland," on which occasion it was believed that no case had occurred in the hospital for a period of five years. By-and-by it became not uncommon. For some years past every practitioner has met with it. It occurs among old residents and natives of the city. Within a few years it is encountered even among people in easy circumstances, and in the best houses of the town. In our Infirmary statistics, it was not taken account of separately from other fevers till 1860. In that year, according to a table supplied to me by Mr. Macdougall, superintendent of the hospital, there were 41 cases of enteric fever; in 1861, 35; in 1862, 79; and in 1863, 67; during which period the fevers of all kinds did not exceed 150 in any single year till the present, when they reached 196. These are no great numbers, and yet sufficient to show a decided tendency to increase during the last fifteen years. Further, Dr. Littlejohn, medical health officer for the city, informs me there have been seventeen deaths from enteric fever reported to the registrar since the 1st of January last, which will correspond with about 120 cases in twelve months, if the average mortality be taken at one in five.

Of all forms of fever none has been more confidently ascribed than this, by London writers, medical and non-medical, to faulty drainage and faulty provision of water-closets. If we are to believe what some have advanced on the subject, there is no case which may not be traced to foul air, derived mainly from one of these sources. Were this a well established principle in social science, the extinction of so deadly a fever should be no very difficult matter. Through the publicity given to the discovery by this Association, and the influence of its members, we might hope to see protection established far and wide against the pestilence.

But I am sorry I cannot call on you to assent to this theory, and carry out its consequences; for there are insurmountable facts in its way. During the period that this scourge has been alternately growing and diminishing in London, has London become alternately worse and better drained, or have the habits of its working-classes been alternately less and more cleanly? Does the disease generally appear where drainage is bad, or water-closets wanting or faultily constructed? Does it attack workmen who live in the London drains, as well as those over them, near them, or far from them? I believe all these queries must be answered in the negative. And what is the case here? Our street drains in the Old Town have been much improved during the very period that enteric fevers have been increasing. The habits of the working-classes in regard to cleanliness admit of reform undoubtedly, but certainly they have not been growing worse. Besides, the individual cases which have been occurring here have been made the subject of careful inquiry, and in many of them it has been impossible to discover any peculiar source of foul air—any thing different from what may be met with in thousands of dwellings where this fever has never shown itself. Of the seventeen deaths hitherto this year, nine occurred in localities to which no

objection could be found. And what are we to say of its appearance among people of easy circumstances? In this sphere I have myself known several deaths from it during the last few years, and no fewer than three during the last twelve months. In the first place, why has it occurred in that class of society only of late? Surely not from any general increase in defective drainage, defective water-closets, or other sources of uncleanness. As to the history of individual cases, I have been content to ascribe the disease, in obedience to the theory of London writers, in one instance to gross disregard of ventilation, and in another to a faulty water-closet. But in the last three I have seen no fault could be found anywhere. Further, this fever does not by any means generally break out where the streets are ill-drained, water-closets wanting, and habits filthy. In countless places of that sort in Edinburgh it is unknown. It may be worth while adding, in reference to an independent question likely to be discussed in this section, that enteric fever is not known in or near the "foul meadows" of Craigentinny.

I suspect, then, it must be allowed of this disease, as in respect to most other epidemic diseases, that we do not yet know its cause—that foul air merely favours its invasion; but that its true cause is something much more specific—some ζυμη, or ferment, which has hitherto eluded our search. In that case, while we shall do well to encourage better drains, more and better water-closets, and better ventilation of dwellings, still we must not count upon thus extirpating enteric fever.—*Edinburgh Medical Journal*, Nov. 1863, p. 429.

2.—ON THE CHLORINE TREATMENT OF SCARLET FEVER.

By E. J. BLYTH, Esq., Whitechurch, Reading.

[Mr. Blyth about twelve months ago published an article on the employment of Chlorine in the treatment of Scarlet Fever. Since then he has had many opportunities of trying it, and only with the result of increasing his confidence in its utility in this disease. He says:]

If we consider the essence, so to say, of the disease, it must be due to a poisoned state of the blood, which poison takes some time to be diffused or multiplied in that fluid, and then the early symptoms of general fever—shivering, headache, sickness, &c.—occur, the pulse early being very frequent. Then nature endeavours to relieve herself by the characteristic eruption. In the onset it appears in the throat (internal skin) and is apparent there first owing to this very delicate internal skin being kept so warm and moist: then the eruption comes out on the skin generally. The mischief in the throat may be so great as to lead to ulceration and destruction of its tissue, sometimes the whole soft palate being lost: and this is from the poison destroying the nutrition of the part. In favourable cases generally the fever abates on the appearance of the rash. In unfavourable ones the system becomes poisoned more and more, and the patient succumbs. And this result is not confined to the severe cases, but the mild are fraught with danger: for when the skin does not come out in a good rash, so as to eliminate the poison, the kidneys make an effort to rid the blood of the offending material: their structure suffers, and dropsy and its sequences result. Bearing in mind that even in the mildest form of cases suddenly adverse symptoms occur,—as headache from cerebral congestion, rapidly proving fatal, or dropsy, which is frequently most obstinate and difficult to be managed,—I never depart from my rule of giving medicine to every patient where there is the most remote suspicion that the case may prove one of scarlet fever. There is but small doubt that the infectious state is when the patient himself is getting all right; the disease has expended its force on him, and he is throwing it off, and is casting his skin. This attempt at excretion occurs early in the throat, and the excreted material from that surface should be rendered inert. I believe a great point in treatment is to give some remedy frequently, which in passing over the throat shall neutralize the poison which nature is casting off by the eruptions and

secretions of the throat, and so prevent the poisoned matter being swallowed over and over again, and the system more and more loaded; and at the same time that frequent administration of the remedy may influence the whole mass of the blood beneficially, and that in the shortest time possible. My plan is to give the solution of chlorine every hour, night and day. Where the case is any thing like an anxious one,—and how anxious may even the simple case become!—I rely solely on the chlorine. Very rarely I may, perchance, add a little antimony to lower the pulse; but, as a rule, I only give the chlorine, sometimes with quina, &c., &c.

Let me urge my medical brethren to give a full and fair trial to my remedy, relying implicitly on it; and this I ask of every one who does so, that he will send me every six months an account of his experience. I see no reason why every one using this remedy fully should not be blessed with the same success that I have been, during many years that I have used this specific in an active and extensive practice.

Put ten grains of chlorate of potash, finely levigated, in a pint bottle; cork it; add one drachm of hydrochloric acid; in a minute or so add an ounce of water, and shake; to dissolve the vapour, let it stand a short time; then add more and more water at intervals until the bottle is filled. A child of twelve years may take one ounce every hour.—*Lancet*, Jan. 16, 1864, p. 87.

3.—ON THE USE OF SULPHITES AND HYPOSULPHITES IN THE TREATMENT OF ZYMOTIC DISEASES.

By Dr. DE RIOCI.

Professor Polli, of Milan, has, for several years past, devoted much of his time to the investigation of zymotic diseases in general, but more especially of those which depend upon purulent absorption, with a view, if possible, to discovering an agent which would be capable of destroying those fermenting principles which are supposed to be the cause of these diseases, while it would be, at the same time, innocuous to the constitution. In May, 1862, the Dublin Quarterly Journal of Medical Science published a short review on Dr. Polli's work *On the Use of Alkaline Sulphites in the Treatment of Diseases depending on Morbific Ferments*, and that valuable periodical fully recognized the importance of his researches. Since that time I have been in direct correspondence with the Italian professor, and, having received from himself much additional information, together with the request that I would prominently bring the subject of his investigations before the medical profession in this country, I have complied with his request, and do so at present by laying a brief sketch of his labors and results before the Obstetrical Society at Dublin.

I should have been happy if I could have brought additional personal evidence of my own to corroborate Dr. Polli's accounts, but, unfortunately, my opportunities have been very limited. I have, however, proved to my complete satisfaction that the sulphites of soda, potassa, and magnesia, which are the remedies he relies on in cases of purulent infection, can be freely administered to human beings, even in large doses and for a considerable time, without producing any disagreeable consequences; and this fact will, I trust, induce many to give a trial to these substances in every case they may appear to be indicated, in order to test their real value.

I do not now stop to argue whether these so-called zymotic diseases really depend upon the presence in the circulation of a special ferment, as their name would imply; it is generally thought to be so, and, for the present, we must take it for granted, as Professor Polli bases all his theory and practice upon that assumption. The great physiologist Bernard held this view, and believed "that fermentation may arise in the blood, and give origin to poisonous principles, which may, in their turn, produce certain grave accident in the living frame;" but adds:—"We cannot neutralize these ferments in the living organism; it is impossible; because, to effect such a purpose, it

would be necessary to interfere with the characters of the blood to such a degree that it would no longer be capable of maintaining life." The Italian professor, however, thought differently. He had long been studying the antiseptic effects of sulphurous acid upon animal substances; he had established, by repeated experiments, that animals recently killed, if suspended in a well-closed vessel, containing but a small quantity of a solution of sulphurous acid in water, just sufficient to supply, by evaporation, a slight atmosphere of sulphurous acid gas, would keep perfectly fresh for months. He also established, by direct experiment, that sulphurous acid, in very small quantities, had the power of preventing not only the ordinary vinous fermentations—a fact well known in all wine countries—but also those other fermentations, such as the diastatic, by which starch is converted into glucose, that of the pancreatic juice upon fatty substances, and that of emulsine upon amygdaline; and he came to the conclusion that in sulphurous acid we possess a substance capable of arresting every form of catalytic action. But sulphurous acid could not, with impunity, be introduced into the animal economy; so the professor turned his attention to the compounds of sulphurous and hyposulphurous acid, which, by analogy, he hoped to find equally capable, though probably in a minor degree, of arresting the action of ferments. He was not disappointed. He found that the action of the sulphites of soda, potassa and magnesia was quite as decided as that of the acid itself in preventing fermentation; while, at the same time, he fully established the fact, that an animal, such as a dog, can take as much as fifteen grammes (225 grains) of an alkaline sulphite per diem, during a whole fortnight, without any inconvenience. I can fully corroborate the assertion of Dr. Polli so far; and am happy to be able to add my testimony to the fact of the perfect tolerance, by even the human stomach, of the sulphite of soda in full doses. I have often prescribed it, during the last two years, in doses of as much as one drachm three times a day, without producing the slightest gastric derangement; and, although I have not, as yet, had an opportunity of testing its value in a case of either pyæmia, puerperal peritonitis, or glanders, still the results I obtained in the cases I employed it have led me to hope much, from its extended use in all diseases arising from purulent infection or septicæmia.

Before relating, however, the results of my small experience in this matter, I wish to lay before the society some further account of Professor Polli's investigations. Having satisfactorily proved to himself that animals can bear with impunity large doses of sulphites, he took three dogs of about the same size; two of these he fed upon food containing sulphite of soda, the third he fed exactly alike, only minus the sulphite. After twenty-four hours the three animals were killed, and, by analysis, he discovered the presence of the sulphite in the blood, the liver, and the urine of the first two dogs, while, as might have been anticipated, he found none in the third. This was a very valuable experiment. It proved that the sulphites, *as such*, were carried into the circulation; and, if they were able to prevent and even arrest the action of an animal ferment outside the body, Professor Polli argued that they might equally prevent or arrest the action of a ferment within the body; and as the dogs, which had been largely dosed with sulphites, had shown no bad effects from it during life, nor any organic lesion from the use of them when examined after death, they having been purposely killed while still under the full influence of the sulphites, he concluded that, in all probability, we possessed in the compounds of sulphurous acid, with earths and alkalis, a means of arresting catalytic action in the animal economy without in any way interfering with the vitality of the blood—contrary to Claude Bernard's assertion, that any substance capable of destroying the action of a ferment in the living body would exert so destructive an action on the blood itself, as to imperil its vitality. Professor Polli now varied his experiments. He administered two grammes of sulphite of soda daily to a dog, for the space of five days; at the end of that time he drew off two ounces of blood, and exposed it to the air in an open vessel, beside another vessel containing blood drawn from a dog to whom no sulphites had been given. In a very few

days the blood of the latter dog was quite putrid, while that of the dog which had been dosed with the sulphites was perfectly fresh even three weeks later. Two great facts had now been arrived at:—1st, That sulphites, when administered to a living animal, are carried, *as such*, into the circulation, and diffused all over the organism without the slightest inconvenience to the animal; and, 2nd, That the presence of these salts in the liquids and solids of the body retards the putrefactive fermentation for a very considerable period. Dr. Polli having obtained such encouraging results, proceeded to more crucial experiments. He took two dogs of about the same size, and equally in good health; he fed them exactly alike for five days, with the exception of administering to one of them two grammes of sulphite of soda daily—the other dog getting exactly the same food, minus the sulphite. At the end of five days he injected into the femoral veins of both animals one gramme of pus, taken from a fetid abscess occurring in a broken-down constitution. The operation, in both cases, was carefully performed, and the animals suffered but little. Immediately after the injection both dogs appeared stupefied; they lay down and refused all food, remaining quite prostrate for twenty-four hours. On the following day, however, they both seemed a little better, and took some food. A second injection of pus was now practised on both animals to the same amount, but the first dog had, the meanwhile, been getting two grammes of sulphite daily, while the other was only getting plain food. The effect of the second injection was most interesting; both dogs were affected instantly alike; both were seized with stupor; in both the pulse was rapid, but feeble, while the respiration was greatly accelerated. Both dogs refused to eat; both lay down in a state of stupor; and, when made to rise and walk, they tottered and reeled across the room. The first dog, however, continued to receive, daily, a dose of two grammes of sulphite of soda, and in four days was so far recovered as to be able to eat his food with relish, while the wound in the femoral vein was rapidly healing. The other dog fared differently; he got no sulphites, either before or after the operation, and the result was that he daily became worse; the wound in the thigh became gangrenous, the limb swelled up, and ten days after the second injection the dog died with all the symptoms of typhus, the first dog being already about and well. The result of this experiment was highly satisfactory; but the Professor did not rest satisfied with it, so he again proceeded as follows:—On the 9th of March, 1861, he injected into the femoral veins of three dogs three grammes of putrid blood to each. (This blood was defibrinated bullock's blood, which had been kept for four months; it was quite putrid, and exhaled a highly fetid ammoniacal odour.) The three dogs were about the same size, and were fed exactly alike, with the exception of dog No. 1, who, for two days previous to the operation, had taken sixteen grammes of sulphite of soda in one gramme doses. A few minutes after the injection the three dogs were affected very much alike. No. 1 vomited almost immediately, looked ill, lay down at once, and for several hours refused all food; the following day it was still heavy and stupid. Two grammes of sulphite of soda were administered to it, and repeated the following days; on the third after the operation the dog was already much improved, and by the fifth it was perfectly well. Of the other two dogs, one, after having vomited, remained standing, with its legs wide apart and its head hanging down; it shook and shivered all over, then fell on its side, panting violently; gradually it became worse and worse, and finally died in five hours. The other suffered much in the same way; it lived five days, during which it was too weak to stand; it did not eat; the wound in the thigh became gangrenous, and it expired comatose, with all the symptoms of typhus fever. It was examined after death, when the lungs were found of a deep red colour, dotted all over with ecchymotic patches, some of which had suppurated in the centre, the right cavity of the heart was filled with black grumous blood, while a pale yellow fibrinous clot filled not only the left ventricle, but extended also into the aorta. The whole gastro-intestinal tract was injected, and smeared in places by purulent matter.

This same experiment was now repeated in a modified form. Two dogs of

nearly same weight, in good health, were submitted to an injection of one gramme of putrid blood each; but in one case the blood was diluted first with three grammes of a saturated solution of sulphite of soda. Both dogs were very ill at first, and both recovered eventually; but while the dog which had received the diluted injection was only sick for two days, the other was more than a fortnight before it struggled into convalescence.

This was a very valuable experiment. It showed that these sulphites can with safety be introduced directly into the circulation, without in any way endangering the vitality of the blood. I should have premised that Dr. Polli had previously tested the safety of injecting a solution of sulphite of soda into the circulation by trying it in healthy dogs, and had done so repeatedly without any bad results.

Encouraged by the evident success of his experiments, Dr. Polli determined to test the efficacy of the sulphites by bringing them into direct antagonism with one of the most virulent of animal poisons, that of glanders. He took a strong, healthy dog, and, having made a cutaneous incision between its shoulders, where the animal could not reach with its mouth, he introduced through it into the subcutaneous cellular tissue, some discharge obtained from the nares of a glandered horse. In a few days the wound became gaping and ill-conditioned; the dog looked ill, heavy, and stupid: it refused its food; and, by the fourteenth day, the animal had a number of unhealthy pustules over its body, which spread out into ill-looking, sanious ulcers. The dog became daily worse; and finally died twenty-six days after the inoculation. An examination after death revealed a highly injected condition of the mucous membrane of the stomach, with many cecchymotic patches. The intestines were highly vascular, and of a dark livid colour; while the lungs were thickly studded with apoplectic clots. Professor Polli now took two large dogs, as similar as possible both in size and health, and having administered to one of them eight grammes daily of sulphite of soda, he injected into the femoral veins of both dogs three grammes each of the muco-purulent discharge obtained from the nares of the same glandered horse which had served for the previous experiment. The first dog which had received the sulphites seemed at first to suffer the most from the injection. It at once fell to the ground as stunned, and its breathing was rapid and panting; but in a few hours it began to recover, and the following day it was able to eat. The second dog bore the operation better, and did not appear to sustain so severe a shock; but on the following day it began to mope: towards evening it was very drowsy, and with difficulty it could be got to stand; by the third day the animal's extremities had become oedematous and painful; by the fourth, a purulent discharge was running from its nose and eyes—the wound in the thigh was now almost gangrenous; on the sixth day the animal died, worn out by pain, fetid suppuration, and diarrhoea. The first dog was by this time completely recovered.

I might relate many other instances of equal interest, as Professor Polli has repeated these experiments nearly a hundred times, *almost always* with a *successful, always invariably* with a *satisfactory* result. He seems to have clearly established that, contrary to C. Bernard's assertion, those ferments which, in the animal frame, are capable of originating zymotic diseases, *can be neutralized* by substances which do not in any way prove injurious to the animal economy. I cannot bear full testimony to the correctness of Professor Polli's experiments, not having as yet had as ample opportunities of testing their accuracy as I could wish; but I can bear testimony to the harmlessness of the sulphites of soda, potassa, and magnesia, when administered internally, even in large doses; and I think that in three cases in which I employed these remedies I observed a decided improvement after their administration. One was a case of phthisis, with excessive purulent expectoration. The patient took for several months one scruple of sulphite of soda three times a day, with very manifest advantage. In this case, although the cure was hopeless, I gave the sulphite with a view to diminishing the purulent secretion, and I was not disappointed. Another case was that of a gentleman who consulted me about an unpleasant eruption by which he was tormented, and

which looked extremely like rupia. He assured me, however, that he had not had syphilis for eighteen years previous; and I have no reason to doubt his assertion. I gave him half drachm doses of sulphite of soda three times a day, in a bitter infusion, and in a short time he became perfectly well. I gave him no other medicine. The third case was one of constantly recurring boils, some of which were sufficiently large to require incisions. The patient was a young gentleman in easy circumstances, well nourished; and although a student in an English university, not in any way broken in health by over study. He had been suffering from these troublesome boils for upwards of six months. After trying divers remedies, I placed him under a course of sulphite of soda, giving him one drachm of the salt three times a-day; and in less than a month not a boil could be seen on his body, though his face, neck, and shoulders still exhibited plentiful traces of his former tormentors.

It is not in private practice, however, that the real value of a remedy can be fairly tested. I have proved to my satisfaction that the sulphites are, at any rate, uninjurious to the animal economy. It now becomes the duty of those physicians and surgeons who enjoy the incomparable advantage of hospital practice to put these remedies to the test. It is to them that my friend, Dr. Polli, appeals. "To the test of clinical investigation and clinical result I leave the issue of my discovery," are his words to me.

If Professor Polli has not deceived himself—if these sulphites really have the power of neutralizing animal poisons, even after their absorption into the circulation—his discovery would be as great, if not greater, than that of Jenner. Nothing can be more candid than his conduct has been throughout. He has made no secret of his discovery; and nothing can be more modest than his constant expression:—"I wait for the verdict of the clinical students of Europe."

In conclusion, I earnestly beg to call the attention of all practitioners, and especially of those who enjoy the privilege of hospital practice, to the subject of this paper. Let these remedies be tried in every case in which they offer a chance of success, both in the treatment of disease and as prophylactics also. Whenever they meet a case of scarlatina, let them treat not only the patient, but let every individual in the family take a certain quantity daily of one of these sulphites; and let the same plan be adopted in every case apparently depending on some zymotic poison, whether fever, pyæmia, septicæmia, or puerperal peritonitis.—*Dublin Quarterly Journal*, Nov. 1863, p. 470.

4.—A CASE OF GONORRHŒAL RHEUMATISM SUCCESSFULLY TREATED WITH THE TINCTURE OF LARCH.

By Dr. JOHN POPHAM, A. M., Physician to the Cork North Infirmary.

[The patient was completely disabled from rheumatism affecting nearly every joint of his body. Six weeks before admission to the Cork Infirmary he had been wet through, and exposed to severe cold while suffering from gonorrhœa. Severe rigours and pains in the joints ensued.]

The chief joints engaged were the shoulders and elbows of the upper extremities, and the hips, knees and ankles of the lower. From the wasting of the muscular and adipose tissues, the joints seemed so much enlarged as to present an appearance of considerable deformity. The ankle joints were much swollen and painful, and the soles of the feet were covered with a thick scaly incrustation, extending round to the roots of the large toe nails. The calves of the legs were thin, flabby and pendulous. He had a urethral discharge of a gleet character. From the severity of the nocturnal pains and the loss of sleep his face had a haggard and greasy or waxy look. The tongue and throat were covered with a curdy-looking coat, but without any ulceration. His pulse varied from seventy to eighty; he had no cough or pain of the chest, but his voice was weak, and at times scarcely audible.

In consequence of the nocturnal pains he was ordered the iodide of potassium in decoction of bark, and an opiate at bed-time, accompanied with the

cautious use of vapour baths, both general and local, with a diet of meat and porter. The further progress of the case was as follows :

Sept. 14. Symptoms as before. As he was greatly emaciated he was directed to try a dessert spoonful of cod-liver oil three times a-day.

Sept. 19. The bark was changed for sarsaparilla, as it caused nausea.

Sept. 27. A troublesome diarrhœa set in, which he attributed to the porter, which was indifferent. His medicines were stopped, and he was ordered chalk mixture with catechu and opium, and a full dose of Dover's powder at bed-time.

Oct. 8. The diarrhœa has ceased. Ordered a diet of milk and eggs, lime-water to be used with the milk; opiates at bed-time, and a grain of sulphate of quinine three times a-day.

Oct. 17. The night pains were so agonizing that the iodide of potassium was again tried; and a chloroform liniment gave some relief.

Oct. 24. The cod-liver oil was used for a few days, but was thrown off the stomach. On reviewing the case the progress seemed discouraging. The pains continued unabated; the scaly eruption on the feet was spreading; his general health was not improved; and the helpless and crippled state of the limbs persisted. It was plain that the course of treatment hitherto adopted was inefficacious: but what other could be substituted with advantage? On inquiry he admitted that, ten years before, he had a primary venereal affection, so that there appeared a possibility that gentle mercurialization might improve the scaly psoriasis. With this hope, half a drachm of mercurial ointment was rubbed in every second night, and washed off in the morning, so as to hold the remedy in check. Other medicines were discontinued, except a night dose of Dover's powder.

Oct. 30. He has had a return of diarrhœa during the last few days, for which he was ordered decoction of logwood, with tinctures of cinnamon and opium.

Nov. 10. The diarrhœa has ceased; the mouth has become slightly affected. Ordered to omit the inunction. As the Dover's powder produced perspiration which weakened him, he was ordered a night draught of tincture of hyoscyamus. The quinine was resumed, and he was directed to take a couple of glasses of sound wine daily, with strong beef tea *ad libitum*.

Nov. 21. Not much improvement as yet from the mercurial course; his state is very critical; his tongue is red, with a curdy layer of an aphthous character; the throat is of an erysipelatous hue; tenderness on pressing epigastrium; nausea, and occasional vomiting; aphonia almost complete; he speaks in so low a whisper that a person must stoop down to hear him: pulse not increased in frequency; stripping prevented by the use of several air pillows; he lies on the back altogether, and the bones are projecting. Upon a close examination of the chest no evidence of tubercular deposit could be detected. At this stage of the case he was ordered the larch tincture—half a drachm three times a day, and fifteen minims of Battley's sedative every night.

Dec. 12. He has taken the tincture of larch regularly since the preceding report, and has been getting gradually stronger. The larch does not seem to increase the quantity of urine, or to present any obvious effect. Besides the larch, he has continued the quinine as before, finding that it checked perspirations, and also the night draught of Battley. His diet is three pints of new milk per diem, eggs, and two or three glasses of port wine. As he still feels the pains of the joints, he was ordered a liniment of half an ounce of tincture of aconite in an ounce and a half of camphor liniment, which afforded him great relief.

1863, Jan. 17. Since the last report he has improved considerably; he is able to be up for a few hours daily; he is gaining flesh; the painful and depressing expression of his countenance has given place to hope; the squamous eruption upon the feet, which has been on the decline since the beginning of December, has now disappeared; he has recovered his voice; all the symptoms of gastro-enteritic disturbance have left him, so that he has been

able to resume the use of meat. It was resolved to test the effect of the medicines by omitting the quinine.

Jan. 24. He is of opinion that, since the omission of the quinine, the perspirations are more copious at night; in every other way he continues to improve.

Feb. 2. Since the last report he has resumed the quinine, and with the effect of stopping the perspirations; the night pains have ceased; he gets about by the aid of two sticks, but when long up the ankles swell; he is gaining flesh and strength rapidly.

Feb. 26. He left the hospital this day, able to walk without support, and in every way recovered.

Remarks.—The preceding case afforded an instance of intractable arthritic affection, arising from protracted exposure to cold and wet, while the patient was suffering from chronic inflammation of the urethra. The arthritis is evidently not metastatic, as the urethral discharge did not abate; but it set in with much greater severity than occurs in ordinary arthritic attacks. For example:—The patient was much more worn down upon admission than he might reasonably be expected to have become in so short a time; his muscles had lost their tension and rapidity of contraction, and in all probability, their vividness of colour; the joints, especially the ankles, had become enlarged by deposits consisting of effusion into the areolar tissue, and thickening of the periosteum and perichondrium. A very peculiar scaly eruption formed upon the soles of the feet, but rarely met with in such cases, and confined to those parts, so that it may be truly termed “plantar psoriasis.” It is worthy of notice that the heart was not engaged, and seldom is, in this form. The usual nocturnal exacerbations were also unusually severe. Another peculiarity of this affection is a sallow, tallowy hue of the countenance, with a worn and despairing expression; and there is reason to suppose that the tendency to gastro-enteric complication is not casual.

With respect to the treatment:—The iodide of potassium, usually so effective a remedy in syphilitic pains, failed to afford relief; the various preparations of bark were equally powerless, though quinine succeeded in checking the perspirations. All forms of baths increased the debility; sarsaparilla and guaiacum were inoperative, and cod-liver oil disagreed. The claims of the mercurial treatment cannot be disposed of so evidently; it indisputably caused much present disturbance; but whether it co-operated in overcoming slowly the deep resistance of the disease is open to question.

There is nothing more certain than that the amelioration in the case commenced with the administration of the larch. He was reduced to extreme emaciation, and only prevented from stripping by the ingenious application of air cushions disposed all round his person. All the gastric symptoms, one by one, retired; the curdy aphthous secretions, the raw redness of the pharynx, and the complete aphonia gradually yielded. The urethral discharge ceased, under injections, at an early period of the case, and did not seem to increase or lessen the arthritis while it lasted. As to the *modus agendi* of the larch—it did not act by diuresis, as some supposed; nor did it cause diarrhoea, as I have noticed in some cases where it has been given. It probably exerts some specific effect upon the urinary system, the urine becoming natural, apparently in its sensible qualities, under its use. Of the unmanageable nature of this ailment every practitioner of experience will recollect examples.—*Dublin Quarterly Journal*, Nov. 1863, p. 478.

5.—ON THE TREATMENT OF TENDINOUS RHEUMATISM BY THE EXTERNAL EMPLOYMENT OF SULPHUR.

By Dr. RENARD.

Tendinous rheumatism, according to Dr. Renard, differs from acute rheumatism by the absence of the general symptoms, and from the chronic by the presence of local inflammatory symptoms. Dr. Renard suffered from this

complaint himself after an attack of acute rheumatism, for which he was copiously bled. The parts affected were the tendons of the hamstring muscles, and no improvement resulted after a long course of diaphoretics, camphor, terebinthinate and other liniments, and the administration of the solanaceæ. At last Dr. Renard saw a passage in an English medical journal, stating that persons suffering from rheumatism in the legs had only to dust the inside of their stockings with sulphur. He immediately employed this simple remedy, the sulphur being the commercial flowers of brimstone, which contain some sulphurous acid. The curative effect was very well marked, for Dr. Renard walked in the evening, then renewed the sulphur in the stockings before sleeping in them, found himself very much relieved the next morning, and nearly quite cured on the morning after. A few days later, he left off the brimstone, and the pain reappeared in the soles of the feet, but yielded very soon to the reapplication of sulphur. Since the year 1857, when he was first attacked, the same experiment was repeated every winter when he was suffering from chronic tenodynia, either in the hams, the heels, or the elbows. He felt, under the influence of the contact of the flowers of brimstone, the skin becoming hotter, slightly excited, and more disposed to sweating; and as soon as this effect was produced, the relief of the pain seemed to be immediately marked. Whatever may be the explanation of the manner in which sulphur exerts its curative agency, Dr. Renard affirms that it has a beneficial effect upon the rheumatic pains of the tendons, and that this action is the more rapid and certain in proportion as the tendons are more superficial and the sulphur is kept more closely over the painful parts.—*British and Foreign Medico-Chirurgical Review*, Jan. 1864, p. 241.

6.—ON DROPSY. ITS GENERAL PATHOLOGY, PROGNOSIS, AND PRINCIPLES OF TREATMENT.

By Dr. GEORGE JONSSON, Physician to King's College Hospital, Professor of Medicine in King's College.

[The main object in this paper, which was delivered as a clinical lecture at King's College, is to give a clear and intelligible explanation of dropsical accumulations. It is evident that the excess of fluid in the serous cavities and in the meshes of areolar tissue, in which dropsy consists, must be owing either to excessive secretion or defective absorption, or to both combined. It is probable that while dropsical effusion is going on, the absorption of liquid from the dropsical parts is nearly if not quite suspended.]

So far as is known, the *bloodvessels* are alone concerned in the exhalation and absorption of this fluid. The lymphatic absorbents have no share in the phenomena of dropsy. The explanation of dropsy is to be found in the condition of the bloodvessels and their contents. In general terms, the proximate cause of dropsy may be, 1st, a mechanical impediment to the circulation of the blood, and a consequent over-fulness of some part of the vascular system; 2nd, an alteration of the physical condition of the blood—either (a) an excess of the watery part, with a relative deficiency of the solids, or (b) an accumulation of excrementitious materials, especially of urinary constituents.

Let us now take some simple examples illustrative of each of these conditions as a cause of dropsy.

An impeded return of the blood through the veins often causes dropsical swelling of the parts beyond the seat of obstruction. Thus the pressure of enlarged glands, or of an aneurism on the femoral or popliteal vein, or the pressure of the gravid uterus on the iliac veins, will give rise to cedema of the lower extremities. Structural disease of the liver, especially an advanced stage of cirrhosis, may greatly impede the return of blood through the portal system of veins, and the result is an effusion of serum into the cavity of the peritoneum, constituting ascites. Dr. Watson relates the case of a man who

had dropsy of the head and neck and upper extremities, while the rest of the body was free from dropsical swelling, and disproportionately small. The cause of the dropsy was found to be obliteration of the superior cava vein by the pressure of an aneurism of the aorta. The larger the vein which is obstructed, the greater will be the extent of the dropsy; and when the impediment to the circulation exists at one of the orifices of the heart, the dropsy may be general over the whole body.

Now the immediate cause of the dropsical effusion in these cases is *overdistension of the veins and capillaries, and increased pressure on their walls.*

Experiment has shown that the transmission of fluids through membranes is in direct proportion to the pressure employed. Experiments by Magendie and others have also shown that while depletion of the bloodvessels by venesection quickens absorption, artificial distension of the vessels by the injection of water checks absorption and favours exhalation or the escape of liquid through the walls of the vessels.

Again, absorption is checked by a retarded movement of the blood through the vessels. "Fluid may be raised against gravity by directing a stream along a membranous canal which lies immersed in the stagnant fluid. The outer fluid enters the canal by endosmose, and is carried away with a speed proportioned to the velocity of the current." An obstacle to the return of blood through the veins therefore checks absorption and favours dropsical effusion, by causing a retarded circulation, increased fulness of the veins and capillaries, and increased pressure on their walls.

It is thus, chiefly, that valvular disease of the heart, and some forms of pulmonary disease—such as emphysema with bronchitis—cause dropsy. I shall presently show you that congestion of the kidneys and a consequent scanty secretion of urine are amongst the results of the cardiac and pulmonary disease which concur in causing dropsical effusion.

Watery blood.—We have next to speak of dropsy having its origin in an alteration of the physical condition of the blood. And, first, dropsy may result from an excess of water and a deficiency of the solid constituents of the blood. In cases of extreme anæmia, whether a result of hemorrhage or that condition of system to which the term chlorosis is applied, we frequently find more or less dropsical swelling, especially of the lower extremities. In these cases the escape of serum from the bloodvessels into the areolar tissue is accounted for partly by the thin and watery state of the blood, partly, perhaps, by an enfeebled condition of the heart. Palpitation and dyspnoea on exertion are common symptoms. It is probable, also, that this thin and watery blood is less readily transmitted through the capillaries than blood which has its normal consistence and composition. Anæmia, therefore, may tend to cause dropsical effusion through the influence of watery blood, weakness of heart, and impeded capillary circulation.

Lastly, we have said that dropsy may result from an accumulation of excrementitious materials, and especially of urine, in the blood. A case of acute renal dropsy is a type of this class of dropsies. A patient with the eruption of scarlatina fully out, or with the skin desquamating after the disappearance of the rash, is exposed to cold: the fever-poison, which was being eliminated by the skin, is thrown in upon the kidneys: these glands become congested and inflamed, the urine is scanty, high-coloured, albuminous, and often bloody, and in the course of a few hours there is general dropsy. What is the cause of dropsy in such a case?

1st. There is an accumulation of water in the blood in consequence of imperfect action of the skin and kidneys.

2nd. Urea and other urinary constituents being retained in the blood occasion an impeded circulation through the capillaries, and a consequent effusion of serum through the walls of those vessels.

One of the most convincing proofs of impeded capillary circulation consequent on contamination of the blood with urine is to be found in the hypertrophy of the left ventricle of the heart, so commonly present in cases of *chronic renal disease*. An analogous obstruction results from an excess of *carbonic acid* in the blood, as proved by the experiments of Dr. John Reid.

3rd. There is probably another case for dropsical effusion in these causes—viz., a direct irritant action of the retained urinary excreta upon the systemic capillaries; an irritant action tending to cause serous effusion, but short of that which would give rise to inflammatory exudation.

Let us now consider some of the points of agreement and of difference between *cardiac* and *renal dropsy*; in other words, between dropsy depending on a mechanical impediment to the circulation and that resulting from disease and defective action of the kidneys. In both classes of cases there is an impeded flow of blood through the capillaries, and a consequent escape of serous fluid from those vessels. In the case of cardiac dropsy the impediment is in the heart, and it acts through the veins on the blood in the capillaries. In the case of renal dropsy the impediment originates in the capillaries themselves, and is a result of the contamination of the blood with urine.

The circulation of impure blood, resulting from defective action of the skin and kidneys, is commonly attended with a considerable degree of febrile reaction and excitement. This form of dropsy, therefore, is sometimes called *acute, active, febrile, inflammatory*.

Cardiac dropsy is chronic and passive, and is unattended by febrile excitement. The blood in cardiac dropsy may have undergone little or no physical change; in cases of renal dropsy it always contains urinary excreta. The so-called inflammatory dropsy is not, however, a result of inflammation, except it be of the kidneys. The areolar tissue, which is the seat of dropsical effusion, is soft, and pits on pressure. The serous fluid is easily movable under pressure. On the other hand, inflammatory effusion into the subcutaneous tissue is fibrinous, hard, and unyielding under the pressure of the finger.

Even when the dropsy is of cardiac origin, we commonly find that there is a scanty secretion of urine consequent on the impeded circulation through the kidneys. Bear in mind that, *ceteris paribus*, the amount of urine secreted depends on the quantity of blood which circulates through the kidneys. Ligation of both renal veins causes a speedy suppression of urine; and when cardiac disease obstructs the general circulation, the urine will be scanty in proportion to the degree in which the blood is impeded in its passage through the kidneys. Thus a scanty secretion of urine is commonly the immediate precursor and cause of that which is rightly called cardiac dropsy.

Not unfrequently in advanced stages of cardiac disease, the renal congestion, resulting from obstructed circulation, leads to albuminuria. And, on the other hand, disease of the endocardium and valves is a frequent result of renal degeneration and consequent blood contamination. So that both the heart and the kidneys are implicated in a large proportion of cases of general dropsy.

In cases of renal dropsy, the effused fluid contains urea. In uncomplicated cardiac dropsy this is not the case.

Cardiac dropsy usually begins in the feet and ankles. The capillary obstruction is greatest in the most dependent parts, from which the blood has to ascend against gravity. The liquid, too, after it has been effused into the areolar tissue, tends to gravitate downwards.

Acute renal dropsy commonly appears simultaneously over the whole body: in the face and in the feet at the same time. The blood in these cases is contaminated with urine. There is, consequently, a universal capillary impediment or congestion, and an active transudation through the walls of the capillaries.

Chronic renal dropsy, on the other hand, often begins in the feet, and thence gradually extends upwards, like cardiac dropsy. In these chronic cases the proximate cause of the dropsy is mainly the impoverished condition of the blood. The blood contains an excess of water, with a deficiency of solids, especially albumen and coloring matter. We find that patients with chronic renal disease are liable to become dropsical, in proportion to the abundance of the albumen and the scantiness of the water in the urine. In

cases of chronic desquamative disease, a form of renal degeneration, attended with a copious secretion of urine and comparatively little albumen, there is commonly no dropsy. On the other hand, dropsy is almost invariably present in those cases of Bright's disease with the large wax-like and fat kidneys, which are associated with a scanty secretion of highly albuminous urine.

In most cases general dropsy is either *cardiac* or *renal* in its origin; but the cause of general dropsy may be in the *lungs*. Emphysema with bronchitis involves a serious impediment to the flow of blood through the lungs, and is a common cause of dropsy. In these cases an excess of carbonic acid in the blood is an additional source of impeded capillary circulation and of consequent dropsical effusion.

Let us now review the facts common to all the forms of dropsical effusion:—

1. In all forms of dropsy there is a preternatural fulness in some part or in the whole of the vascular system.

2. Whatever the cause of dropsy, the dropsical effusion is poured out through the walls of the capillaries.

3. In most forms of dropsy, and probably in all, the flow of blood through the capillaries is impeded.

The cause of the impediment differs in different cases. In one class of cases there is a distant mechanical impediment to the return of blood by the veins; pressure on a venous trunk; or disease of the heart, or lungs, or liver. In another class of cases there is an abnormal condition of the blood itself, and a consequent loss of that mutual relation between the blood and the vessels upon the maintenance of which depends the freedom of the capillary circulation.

The morbid conditions of the blood which chiefly favor the occurrence of dropsy are—1st, an excess of water, with a deficiency of solids, especially of the colouring matter and albumen; and 2nd, the retention and accumulation of excrementitious material—most frequently urea and other urinary constituents, less commonly carbonic acid.

The *prognosis* in cases of dropsy differs extremely according to the nature of the disease of which the dropsy is a symptom. Amongst the uninitiated the belief is very general that dropsy is rarely curable; and when a patient asks concerning his malady, "Is it the dropsy?" an affirmative answer without explanation will almost invariably convey the idea of an incurable disease. The notion that dropsy is essentially incurable is happily an erroneous one. Some forms of dropsy are curable with ease and certainty. The slight anasarca which frequently accompanies chlorosis usually yields at once to appropriate treatment. Cases of acute renal dropsy, if they come early under treatment, usually end in complete recovery.

The cases in which the prognosis is most unfavourable are those in which the dropsy is dependent on advanced *chronic* disease of the kidney, and again those which are associated with organic disease of the heart or liver. Even in cases of incurable organic disease of the heart or kidney or liver a temporary removal of the dropsy may not uncommonly be effected.

The distress and the danger attending a dropsical accumulation are greatly influenced by the seat of the effusion. The difference in this respect is immense between the tunica vaginalis and the pericardium—between the peritoneum and the pleura (the amount of liquid being equal); and so again between the areolar tissue under the skin and that beneath the mucous membrane of the larynx.

Lastly, I will briefly indicate the principles which should guide us in the *treatment* of dropsy.

There are two objects to be aimed at in the treatment of dropsy: 1st, to remove the dropsical accumulation; and 2nd, to remove the original cause of the dropsy. If we can accomplish the second of these objects, the first is generally attained with it. The dropsy will soon disappear with the removal of its cause.

For instance, the slight anasarca which occurs in chlorotic young women

is a result of a poor and watery condition of the blood. The dropsy quickly passes away when the quality of the blood is improved by nutritious food, fresh air, and exercise, with the use of iron as a tonic, and perhaps an occasional aperient.

In the treatment of acute renal dropsy, it is important to bear in mind the relation in which the dropsy stands to the renal disease; and it is especially interesting to observe the phenomena which occur during the progress of recovery. In particular, there is one phenomenon which deserves notice in connexion with the general pathology as well as the treatment of dropsy: I mean the copious flow of urine which occurs spontaneously during convalescence.

In cases of acute renal dropsy the urine is at first scanty and of morbid quality, being often high-coloured from admixture with blood, always albuminous, and usually containing numerous casts of the kidney-tubes. The scanty secretion of urine is the cause of the dropsy, and the secretion of urine is scanty because the flow of blood through the kidney is obstructed and the structure of the gland changed, the tubes being filled with desquamated epithelium and with blood and fibrin which have escaped from the gorged Malpighian vessels. Now observe what happens during the progress of cure in a case of this kind. The patient we will suppose to be placed in circumstances favourable for recovery; he is confined to bed; has a scanty diet; the loins are dry-cupped, or mustard and linseed poultices are applied there; and means are taken to excite the secretory action of the skin and bowels, and thus to lessen the work of the kidneys. Soon the secretion of urine begins to increase, until, in the course of four or five days, perhaps, the quantity of urine, which at first had been less than half the natural amount, becomes three times as great as the standard quantity, no diuretic medicine of any kind having been given.

The explanation of this spontaneous diuresis appears to be this:—During the acute stage of the renal disease, the constituents of the urine, both solids and liquids, have accumulated in the blood, and have thence been effused into the areolar tissue and into the serous cavities. Now urea itself is a most powerful diuretic; and no sooner is the inflammatory congestion of the kidney removed, and the freedom of the renal circulation restored, than the urea exerts its natural diuretic action on the kidney. The copious diuresis thus induced speedily removes the accumulated urinary solids and liquids from the blood, the areolar tissue, and the serous cavities into which they had been effused, and so the dropsy is cured.

This abundant flow of urine occurs without aid from diuretics or drugs of any kind. I have seen it occur while bread-pills alone were given as a *placebo*. Stimulating diuretics, such as squills, or cantharides, or turpentine, are injurious by increasing congestion of the kidney. The best diuretics in such cases are means which tend to lessen the congestion of the kidneys; counter-irritation over the loins, especially by dry-cupping; hot-air baths and diaphoretics, purgatives, and a scanty diet.

In some cases of chronic renal dropsy, diuretics may be given without risk, but too often without much benefit in the way of removing or lessening the dropsy. Diuretics are more frequently successful in cases of cardiac dropsy, when the kidneys are free from disease.

In the treatment of cardiac dropsy, while we endeavour to remove the fluid by diuretics and by purgatives, which excite copious watery discharges from the bowels, it is desirable to do what we can to sustain the power of the heart by nutritious food, stimulants, and tonics. Little or nothing can be done to repair a damaged valve, but much may be done to strengthen the muscular walls of the heart, and thus enable it to overcome the impediment to the flow of blood and the consequent tendency to dropsy which a diseased valve occasions. When other means fail to remove the dropsical accumulation, we may often afford great temporary relief, and prolong life sometimes for a considerable period, by mechanical means—by tapping the abdomen, for instance, in a case of ascites; by acupuncture or incisions through the skin of the legs for the removal of *anasarca*.

It is very interesting to note the phenomena which follow upon puncturing or incising the legs in cases of anasarca. There is first a copious drain of liquid from the punctures. Secondly, there is a further exudation of liquid from the over-distended bloodvessels; this liquid also escapes from the punctures or incisions, and its escape is often associated with temporary symptoms of exhaustion, such as a rapid and feeble pulse and pallor of countenance. Thirdly, there occurs often a copious secretion of urine, in consequence of a more free circulation of blood through the kidneys.

Dropsical accumulation tends to cause a secondary impediment to the circulation by the pressure of the effused liquid from without upon the small bloodvessels. And, again, the capillary circulation becomes more and more impeded in proportion to the increasing distension of the bloodvessels which results from cardiac or renal disease. The drain of liquid from the areolar tissue, allowing of a further exudation from the bloodvessels, thus removes or lessens the obstruction which results from over-fulness of the vessels. The general circulation therefore becomes more free, and the greater freedom of the circulation through the kidney is attended, as we have before seen, by a more copious secretion of urine.

The free action of a hydragogue—elaterium for instance—is often followed by a copious secretion of urine. The gorged vessels are partly unloaded by the drain of liquid from the bowels; the circulation through the kidneys, as through other parts and organs, consequently becomes more free; and hence a copious secretion of urine, and a rapid diminution or even a complete removal of the dropsy.—*Lancet*, Jan. 16, 1864, p. 59.

7.—ON TRICHINA SPIRALIS.

By Dr. W. MUELLER, Homburg.

For many years past the *Trichina spiralis* (class Nematodes) have been found in the muscles of hogs, wound up in a spiral form, and enclosed in chalky capsules; and Dr. Owen discovered and described them in the muscles of men. Professor Zenker, of Dresden, was the first who proved, by a full and exact statement of a case, and a careful and minute post-mortem examination, that the development and wandering of the trichinæ in the human body produce violent symptoms similar to those of typhus fever, and cause, most probably, in many cases, the death of the individual.

Experiments made by Professor Virchow, of Berlin, and Professor Leuckart, of Giessen, by feeding animals with pork in which were trichinæ, proved the same as Professor Zenker's observations in the above-mentioned case—namely, that the trichinæ, when taken into the stomach, commence almost immediately their development, male and female, and innumerable embryos. The young worms, perforating the intestines, enter the muscles, and wandering in them, produce the violent symptoms of the disease above-mentioned, until they become encapsulated in the muscles, in which state they are innocuous.

In Hettstaedt, a small town in Prussia, containing about 5000 or 6000 inhabitants, a veritable epidemical propagation of trichinæ commenced in the middle of October last, in consequence of the infected persons having eaten a kind of sausage (not thoroughly cooked) made of pork in which were trichinæ.

In some cases small portions of muscles were taken by Middeldorpf's harpoon from the persons infected, and whilst suffering with the disease; and by submitting those portions to microscopical examination trichinæ were discovered in them.

In the evening of the 9th of November last I was summoned by a telegram from the physician of Hettstaedt, informing me that a relation of mine was suffering from the trichina disease; that he had also a pneumonic affection, and was very ill. On my arrival on the following day I found the patient—who previous to the attack was a strong and very healthy man, twenty-three

years of age—perfectly conscious, with a slight cedematous swelling of the face. On examination of the chest, a dull sound over about an inch and a half of the lowest part of the lower lobe of the left lung was produced by percussion; crepitating rattles were audible, but there was no bronchial breathing, thus showing the beginning of resolution of the pneumonia; at the lowest part emitting the dull sound there was a slight pleuritic rubbing. The pulse was 140; respirations 48; and the temperature of the body 39° centigrade.

The symptoms of the disease commenced on the 16th of October with loss of appetite and diarrhoea, followed by a sensation of painful weakness in the limbs and difficulty in moving the tongue; the pulse being above 100. The patient was not confined to his bed during the day-time until the 6th of November, when the pneumonic symptoms commenced.

The day after my arrival (Nov. 11th) the pneumonic symptoms were unaltered, with the exception of the pleuritic rubbing, which had moved a little higher up. The whole of the pleuro-pneumonic affection was so very trifling that it certainly did not account for a pulse of from 140 to 150, and for the violent oppression, or rather as the patient explained it himself, "the weakness in drawing his breath."

The following day the frequency of respiration varied between 30 and 60; the pulse was more than 200, and very weak; the temperature had fallen to 38° 6' centigrade; and the body was covered with a profuse clammy perspiration. The other physical symptoms were the same as before, and the pleuritis had not extended higher. The complaint of weakness in breathing, or, as the patient called it, "the impossibility of drawing a sufficient quantity of air into the lungs," was increased; but he remained conscious and resigned, so much so that he several times asked me at what hour I expected he would die.

At seven o'clock on the evening of the 12th of November he died.

The post-mortem examination, performed on the 13th, proved an infiltration of a part of the lower lobe of the left lung, extending upwards about an inch and a half from the lower margin of the lung, and about three or four ounces of liquid exudation in the pleural cavity of the same side. When examining the chest and intercostal muscles, I found, in every small piece of the muscle placed under the microscope, trichinae partly wound up, but not capsulated, partly forming a single sling, and partly extended. In the examined parts of the heart and diaphragm no trichinae were discovered.

On the day previous to the above-mentioned post-mortem examination I examined with the microscope several small pieces of muscles, which had been taken from the bodies of persons who had died of the disease, and were given to me by the physician of Hettstaedt, Dr. Rupprecht, and I found a considerable number of trichinae in them.

Previous to my departure from Hettstaedt, eighteen to twenty persons had died of the trichina disease, and more than eighty persons were at that period afflicted with the same malady, produced by the same cause.

According to the information I obtained on the spot, the disease begins, a few days after eating the meat in which there were trichinae, with loss of appetite, and almost without exception with diarrhoea and fever; oedema of the eyelids; also pain, or at least painful sensation of weakness in the limbs; oedema of the joints; difficulty in moving the tongue; profuse clammy perspiration; and those patients who do not become convalescent, die either unconscious with symptoms of typhus fever, or, in a few cases, remain unconscious to the end, complaining of inability to breathe freely.

The only important symptom of typhus absent in the disease is the enlargement of the spleen, and it is very probable that some of the so-called epidemics of typhus fever in former days were caused by the propagation of trichinae in the human body.

Since the disease has been known (about three years ago) a great many cases have been observed in Germany.

The vitality of the trichinae is not destroyed unless the meat or other substances in which they are located be subjected to the temperature of boiling

water for a sufficient time to ensure that every particle has been acted upon by that degree of heat. Salting and smoking trichinous meat, as is usually done, does not appear to be sufficient to destroy the worms in all parts of the meat.

Picric acid (*acidum picro nitricum*) was tried with the hope that it might be administered with success to the patient, but it failed.

In trichinous pork of a pig killed with pierin acid, the worms were found alive.—*Lancet*, Jan. 23, 1864, p. 93.

8.—TWO CASES OF SMALL-POX SUCCESSFULLY TREATED BY SARRACENIA PURPUREA.

By Dr. WM. HENDERSON GRANT, Aberdeen.

[We always consider the action of medicines an interesting topic, and consequently generally extract from the medical journals any information likely to be of use on this point, but we consider the action of such a remedy as the American pitcher plant peculiarly liable to be overrated. We have ourselves tried it, but we cannot say that the cases in which it was administered ran any different course from those in which nothing at all was given. In several, the eruption rapidly died and disappeared without leaving any pitting, but the same happens in many cases in which no medicine has been given. The question can only be determined by a very extensive and impartial trial. Of the following two cases, one was treated by Dr. Grant's brother.]

I quote extracts from two letters from my brother:—"I am giving a small-pox patient the *sarracenia purpurea*, in infusion; I commenced it yesterday. The eruption appeared four days ago, and is very abundant—a sort of semi-confluent variety, not very serious, but not by any means slight. In answer to my inquiry to-day, how he felt (I was anxious to know the *immediate* effects, if any, of the *sarracenia*), he said he was quite well in health. He is placed in very unfavourable circumstances—a miserable little place of an attic inhabited by three persons." In a note that I received a day or two later he says: "My small-pox case has quite recovered. The *sarracenia* seems to have some specific action, although most M. D.s say it is a hoax, I gave it to this man upon the fourth day of the eruption, up to which time the disease had progressed exactly in the ordinary manner, the vesicles containing clear lymph; but here they were arrested, they never went on to suppuration, and there was no odour perceptible. Prior to his getting the infusion he complained much of restlessness and sleeplessness at night, but after he commenced taking it he slept well. On my last visit, instead of finding symptoms of feverishness, I found him sitting by the fireside, telling me that he 'was quite well, but just not so strong.'"

To give the particulars of my own case would be to repeat a good deal of the substance of the above. The patient, aged twenty-five, was a man of a very full, plethoric habit. The symptoms were severe, and the eruption very abundant, quite of the confluent form on the face; the mouth and fauces were also covered. To extreme restlessness and sleeplessness at night was added pretty smart delirium. The patient commenced taking the infusion on the afternoon of the fifth or sixth day. Relief was almost instantaneous; he slept soundly during the succeeding night, and had no more delirium. When I inquired for him next day, he replied that "he had felt quite easy since I gave him that *stuff*," indicating the infusion. He continued rapidly to improve, and is now recovered.—*Lancet*, Feb. 6, 1864, p. 161.

9.—ON THE EFFICACY OF SARRACENIA PURPUREA IN ARRESTING THE PROGRESS OF SMALL-POX.

By Dr. J. TAYLOR, Old Kent-road, London.

[Dr. Taylor has employed this remedy very extensively, and considers that its utility is unmistakable.]

The following is the formula employed :—Two ounces of the sliced root ; three pints of water, boiled in a closely covered vessel, down to two pints, and strained. The first case was a little girl, six years of age. She was seen on the third day of eruption, of primary small-pox, and immediately began to take the decoction—four ounces per diem in divided doses ; and in less than twenty-four hours the mother reported “she had been better ever since she began to take the medicine.” The eruption was very extensive, pustules large, and in some places confluent. The case advanced apparently without interruption until the seventh day, when the pustules began to shrivel, and on the eleventh day the desiccated scales had nearly all fallen off ; no pitting ; patient convalescent. Every succeeding case was treated in the same manner and with the same success. Only two cases perished ; one an infant three weeks old, who took it from its mother ; the other an adult female, who seemed to sink from pyæmia on the third day of the eruption.

One remarkable fact, however, deserves to be recorded. A poor woman brought her child, a year and a half old, to my surgery one night at eleven o'clock, with the eruption of small-pox, which had on that day made its first appearance. I gave her the decoction, with directions to give a dessert-spoonful four times a day. On the fourth and eighth days her visits were repeated, each time speaking in laudatory terms of the efficacy of the medicine. On the eleventh day of the eruption she made her last visit, making at the same time the following pertinent remarks : “I have called to thank you, sir, for your great kindness. My child is now quite well, all the scabs have fallen off, and the skin has not a blemish on it. That medicine must be very valuable, sir ; for a little girl, the daughter of one of my lodgers, caught the small-pox three days before mine did, and it has not changed a bit ; the pox is all over the body yet in great mattery heads, and here is my child with her skin nearly as clean as when she was born.” I was somewhat incredulous as to this perfect clearance of the skin ; but in half an hour she brought the child for my inspection, and the appearance fully corroborated all she had said. She had not been vaccinated.

The decoction requires to be carefully prepared ; the root should be thinly sliced, and boiled in a closely covered vessel, and for adults the quantity of the root should be increased to three or four ounces to the three pints of water, and about eight ounces administered in the twenty-four hours in four doses. It agrees well with the stomach, possesses eliminative properties, being decidedly diuretic, and generally maintains a daily action on the bowels. In a few cases while under the influence of the remedy, the eruption assumed a papulous character, and terminated in the usual way by desiccation. There is another specimen of the drug in the market, which is composed almost entirely of the pitcher-formed leaves ; this is greatly inferior to the root, in fact is almost inert, and in my opinion deserves to be discarded.

Appropos of external applications for the prevention of pitting, I have not found anything to answer better than the old-fashioned tripe-water, prepared by boiling fat tripe in water, straining the liquor, and applying it warm as a lotion or a fomentation to the face several times a day ; it affords great relief to the distended pustules, which by their backward pressure play an important part in the production of pitting.—*Lancet*, Dec. 5, 1863, p. 664.

10.—ON SARRACENIA PURPUREA.

[The following is the opinion of Dr. James Watson on the action of *sarracenia purpurea*. The cases occurred in the Edinburgh Royal Infirmary.]

In one of the small-pox wards under Dr. Haldane's charge, the *sarracenia purpurea* in infusion was administered to eight patients, the effect carefully watched in each, and the result in all was that the disease ran its natural course. The *sarracenia purpurea* was found absolutely inert; it produced no effect whatever.

[Dr. Watson then reports one case which he especially watched, and observes:]

In this case, it is most certain that the *sarracenia purpurea* did not in the slightest shrivel or wither up the eruption, nor did it seem to affect the patient in any way. It has the virtue, which happily many—unfortunately not all—new drugs possess, of being perfectly innocuous. So much and no more can we say in its favor.—*Edinburgh Medical Journal*, Jan. 1864, p. 623.

DISEASES OF THE NERVOUS SYSTEM.

11.—ON DELIRIUM TREMENS; AS DISTINGUISHED FROM OTHER EFFECTS ON THE MIND, REAL OR APPARENT, OF EXCESS IN DRINKING.

By Dr. WILLIAM SELLER, F. R. S. E., Fellow of the Royal College of Physicians of Edinburgh.

[Pains should always be taken to distinguish delirium tremens from other mental disorders, which either do or seem to take their origin from excessive drinking, for one may very readily be deceived in regard to the maladies in question by dwelling too much on their apparent cause.]

To pass over irregular forms of fever and inflammatory affections of the brain and its membranes which may succeed drinking and sometimes cause difficulty, the other resembling maladies, to which the name of delirium tremens should be refused, come, as far as my observation has extended, under the three following heads:—First, Abortive cases or threatenings of delirium tremens; Second, Cases of insanity, either temporary or more permanent, the immediate precursor of which is excessive drinking; Third, Mere fits of drunkenness, with much violence or extravagance, but without distinct delusion.

Abortive Cases.—What I term abortive cases are often alarming enough, as presenting even all the symptoms usually premonitory of the perfect disease, while their progress only stops short of what must be regarded as the essential characteristic of a regular form of delirium tremens, namely, a delusion or succession of delusions commanding belief and leading to action.

In abortive cases, there may be a greater or less change on the patient's ordinary bearing; there may be alteration of the voice; there may be a sudden starting in the midst of a sentence, and a fixing of the attention on something at a distance in the room; there may be even tremors of the hands, tremors and startings of the lower extremities, and a tremulous tongue, while such alarming symptoms may have been preceded by nearly sleepless nights and uneasy dreams; moreover, these dreams may be attended with a momentary belief in their reality after the patient awakes. If, however, he can dismiss the illusions of his dreams, he may fall, either with or without the aid of treatment, into a quiet sleep, and awake nearly recovered. Sometimes the abortive case takes on a more chronic character, and may continue for a number of days, the patient sleeping heavily at intervals, awaking to long fits of restlessness, all the while being averse to be left alone, and troubled with sudden severe attacks of vomiting; yet, at length, he begins to obtain refreshing sleep, and gradually gets well. The chief obstacle to the immediate restoration of health in most seizures of the abortive disease is the derangement of the digestive organs which is so often concomitant.

Cases of this kind are unquestionably threatenings of delirium tremens,

but being destitute of the characteristic irresistible delusion should be kept apart and denied that name. To draw inferences from such abortive cases, and to make these inferences a part of the medical history of the perfect form of the disease, can lead, it is plain, to nothing but error.

Every medical practitioner must be familiar with abortive cases of this kind, and to designate such delirium tremens is neither conducive to the improvement of medical knowledge, nor just to the patient, who is sometimes far from being an habitual drunkard—an imputation implied in the having undergone an attack of delirium tremens. It happens that men entitled to be described, at least, as not intemperate, are sometimes so unwise as much to exceed their usual allowance of liquor, when things occur to create great mental annoyance. In such circumstances, I have several times seen symptoms arise of the kind just referred to. Here, probably, the mental affection which led to the excess, is as much concerned in the origin of the disturbance as the excess itself.

Of the effect of mere harass of mind, aggravated by the loss of sleep, to produce transitory delirium in a person not constitutionally disposed to mental derangement, I had a striking example during the great railway mania, some fifteen or sixteen years ago. I was sent for to the counting-house of an Edinburgh firm about mid-day, where I found a gentleman from the country held down on the floor by several people. He was struggling violently with them, and by turns raving on the idea that he was charged with having committed some great offence. I had persuaded the people struggling with him to allow him to get up, when, just as he rose to his full height, and he was particularly tall, the door opened, and an eminent medical man, who also had been sent for, entered. Towards him he immediately rushed with his uplifted fist, calling on him by name, in a loud voice, to say if he was mad. My friend, though the very reverse of a timid man, was naturally alarmed, and felt strongly inclined to send the patient at once to an asylum,—but it was finally settled first to make trial of treatment, for a few hours, as there was a bed available, away from the bustle of business, at the top of the house. After an opiate he had some sleep, and in the evening, though still wavering, he was plainly much more himself. Next morning, after a tolerable night, he had so much recovered, that there was little doubt of the paroxysm passing entirely away. He came round quickly, and in the long period which has intervened, he has never shown any tendency to mental disturbance, but has been, what he always was esteemed before, an active and very efficient man of business.

Previously to the attack, which commenced in the night before, he had been for some weeks overwhelmed with occupation, and, finally, had fallen away from his sleep. The circumstance, I believe, which his troubled imagination had converted into a crime, or at least into a grave offence, was, that being arbitrator in a matter of importance, he came to think that he had allowed some evidence to be recorded in behalf of one of the parties which ought to have been rejected. It was certain that this gentleman had been absolutely temperate for some time before. If it had appeared that he had taken an extra glass, for a few evenings before the attack, in order to calm his mind and procure sleep, how readily might this case have figured as one of delirium tremens, cured by opium!

Cases of Insanity, temporary or more permanent, the immediate precursor of which is Excessive Drinking.—It not unfrequently happens that an outbreak of insanity closely coincides in point of time with an excess in drinking. I do not here refer to the form of insanity which has been termed oinomania, or, somewhat absurdly, dipsomania. If there be just ground for establishing oinomania as a form of mental derangement, the insanity should precede, not follow the intemperance. The real insanity, in such a case, is the propensity, the uncontrollable desire to indulge in drinking at the cost of everything which is most prized in social life. It is still doubtful if oinomania be a well-founded distinction. As men are subject to vicious indulgence in tobacco, opium, and other narcotics, so are many prone to periodical fits of drunkenness, who are mad neither when they begin, nor during the course of

the paroxysm of drunkenness. Such men often sacrifice everything to this inordinate propensity. The paroxysm is called oinomania only if they show signs of madness during the fit. Thus, the madness, when it occurs, is not the cause of the drinking, but the effect of the excess.

Among persons at large who are either on the verge of insanity, or actually insane, the abuse of strong liquors may give rise to cases apt to be confounded with delirium tremens. As delirium tremens has very much the character of a specific disease, it should not be rashly assumed that such persons are even susceptible of this malady, or that delirium tremens having arisen in them may be prolonged into acute mania or some other form of mental derangement. For, in the meantime, it seems preferable to keep all cases in which a taint of actual insanity is discoverable apart for further investigation, and to regard delirium tremens in its regular type as a disease brought on in the perfectly sane by excessive drinking.

Persons at large with a taint of insanity may be either under what is called the incubation of insanity, that is under a growing demonstrative predisposition to the malady which will at last break out, or may be at all times constitutionally liable to become insane under the application of certain definite exciting causes, or may be actually insane, yet possessed of a power to control the manifestation of their condition, unless when the sudden occurrence of new circumstances deprives them of such control and renders their state of mind apparent to the world.

The phrase "incubation of insanity" is familiar to medical minds. When an incubation, which plainly is but another word for an accumulating predisposition not unmarked by discoverable signs, has attained a sufficient development, any strong excitement that happens to occur may prove the immediate cause of the outbreak of the disease already impending. Nothing then is so likely to be followed by such an effect as deep excess in drinking. If the medical attendant be not made aware of the evidence of a previous incubation of insanity, he can hardly avoid ascribing the outbreak to delirium tremens. It may even happen that, during the incubation of insanity, several successive transitory outbreaks of delirium may succeed as many occasions of excess, before the final, more permanent malady becomes established. Observations made on such outbreaks seriously mislead, if used to illustrate the character of genuine delirium tremens.

The following case exemplifies the occurrence of an attack resembling delirium tremens during the incubation of insanity. Though but one outbreak was observed in this patient it is easy to believe that several transitory outbreaks might have occurred, under the like circumstances, at an earlier and less developed period of the incubation.

A medical student of twenty-two or twenty-three years of age came to Edinburgh to finish the studies which he had pursued for some time at Paris. He was from the first observed to be highly eccentric in various particulars, singular in his sentiments and manner, and, above all, very suspicious and jealous of being slighted by those about him. He was habitually temperate and regular in his conduct. Being, however, of a hospitable turn, he was accustomed to give an entertainment in a tavern to his intimate companions as often as he received his quarterly allowance. On one occasion this entertainment was prolonged to a very late hour; the next morning he was found to be very noisy and delirious. One of his illusions was, that some young men unfriendly to him had employed little boys to shout out, in front of the house where he lived, that he had not paid the last night's tavern bill. The disease, owing to the mode of its origin, the aspect of the patient, and the kind of delirium, was naturally regarded as allied to delirium tremens; nevertheless, it turned out to be a case of acute mania, or at least, after a few days it took on that character. Without having entirely recovered from mental derangement, he died within a year of rapidly-developed phthisis.

During the incubation of insanity it is sometimes discovered that persons distinguished previously for temperate habits had frequently indulged in secret drinking. The drinking in such a case is not always related to oinomania. There appears to be no irresistible impulse to excess,—it is simply one of the

irregularities of conduct developed by the general failure of self-control. Yet if an outbreak of insanity take place coincidently with one of these indulgences, the whole disease may for a time be imputed to excess in liquor. This at least may occur in the absence, as so often happens, of exact accounts as to the previous condition of the patient.

A gentleman, remarkable among his intimates for habitual restraint in the use of wine, was discovered to have generally consumed a bottle of wine during the night for a considerable period, during the incubation of mental derangement. This excess, though it may have hastened the progress of the disease, did not appear to have any particular connexion with its actual onset; neither did the desire for intoxicating liquors take any prominence during the continuance of the malady, which was prolonged for several years.

Our next subdivision includes the cases of persons at all times constitutionally liable to become insane under the application of certain definite exciting causes. It is commonly received that the victims of this unhappy predisposition suffer from the remains of some disease of the brain or injury of the head in early life. When such persons cannot resist the temptation to drink to excess, their lot is very miserable. They commonly recover at once when put in confinement, and often must suffer all the irksomeness of asylum residence for life without a remedy. While at large they are seldom free from singularities of conduct sufficient to attract attention. Some of them, in popular language, are described as deficient so many pence in the shilling. They are frequently conscious of their deficiencies, and make unavailing efforts to remedy them. Some are quite capable of business; others are unfit for continued application to any pursuit. It is common to the persons now referred to that in general they conduct themselves with sufficient propriety. But with a certain number it happens that when they are led to indulge in liquor they become quite maniacal, often violent in the extreme, and very prone to do injury to others. It cannot be doubted that many in this condition being apprehended by the authorities and sent to an hospital, serve to swell the list of cases of delirium tremens spontaneously cured.

A young man, on whose early education every pains had been bestowed, was discovered to be eccentric in various particulars. As he approached manhood he failed in every attempt made by his relations to put him in the way of fitting himself for a profession or occupation of some kind. He was supposed to have suffered in infancy from disease of the head. He showed no defect of intelligence in ordinary conversation, being able most commonly to maintain his part, even in argument, without betraying any signs of ignorance, or deficiency of understanding. He was, however, manifestly dispirited by the consciousness of the presence of some mental defect. Latterly, he came to indulge at times in drinking, and then he became furious, threatening his relatives in the most alarming manner, and sometimes even attacking strangers. He was repeatedly sent to an asylum, for such violence, where, after a day or two, he regained his former state of mind. At one time he seemed to improve very much, so that a hope arose that the disease was passing away. But the same violence on a return to drinking has recurred.

I was, not long ago, asked to visit a case of this kind in the Morningside Asylum, on the part of the parish to which the patient belonged. He had been sent there by the authorities of a neighbouring shire on account of a murderous attack on relatives while under the influence of liquor. I found a young man as quiet and conversable as could well be described, actively engaged in assisting at some out-of-door work. He had shown no sign of derangement in the asylum; but the charges against him on several occasions before he was sent there, when excited by liquor, were too definite to permit me to recommend his dismissal, unless some friend would be surety that he would keep him from drinking.

Our next subdivision of persons at large with a taint of insanity includes those who are actually insane, but possessed of a power to control the manifestation of their condition, unless when the sudden occurrence of new circumstances deprive them of self-control and renders their state of mind *apparent to the world*.

It cannot be doubted that there are at all times not a few persons at large who are inwardly in a state of insanity, who indulge within themselves in morbid imaginings, viewed as realities, who are, nevertheless, able for the most part to suppress, by the power of the will, any considerable manifestation of their disorder. If men so affected ever yield to the temptation of drinking, it is readily to be believed that their self-restraint will be lost, and the usual indications of insanity brought forth. As soon as the immediate effects of the intemperance pass away, most commonly not till several days have elapsed, the control of self returns, and the disease seems to be cured. I have had an opportunity of becoming acquainted with an instance, which I believe to be of this nature, where successive outbreaks, at considerable intervals, were mistaken for attacks of delirium tremens.

Though it is foreign to our present purpose, I will add an observation which I think deserves consideration. In the kind of suppressed insanity just referred to, the outbreak may occur not only from a fit of intemperance, but from any sudden, real, or supposed provocation, while the violence so excited may even be homicidal. Thus a madman at large able to suppress the indications of his disorder may, without apparent cause, but from some concealed motive, break from his self-restraint and commit a crime. I do not propose this as a theory to account for what is termed impulsive homicidal tendency, yet it is not unlikely that some of the recorded cases of homicidal insanity on apparently sudden impulse come under this description.

The power of suppressing the indications of mental derangement which belongs to some insane persons deserves a closer examination than it seems to have yet received. With a power of this kind exerted for a short time, as, for example, during examination by a physician, the object of which is known to the patient to be confinement, the medical profession are sufficiently familiar. It less frequently happens that full evidence is obtained of a long-continued self-restraint, such as is indicated above. In the view I take I rely much on the latter of the two following cases: both lie within my own experience.

A well-educated young man, affected but for a few days with acute mania, was admitted into an asylum, where he immediately became to all appearance well. He was made useful in the house, and in a short time was sent out on excursions in charge of patients, and was even permitted to take them to amusements in the town. At the end of three months he was dismissed cured. He went back to the house from which he was taken three months before, and in less than two hours he was as ill as on the first occasion. He was admitted again to the asylum, and immediately seemed quite well. At the end of other three months he was again dismissed, and travelled for a while before returning home. This happened a number of years ago, and there has been no indication of derangement since.

A gentleman of middle age was attacked with insanity, accompanied with much extravagance of speech and sentiment. After some weeks it was proposed to send him to an asylum, and two medical friends visited him one day in order to draw up a certificate. That day, for the first time after the outbreak, he suppressed all extravagance, and spoke quite rationally. From that day several years during which he lived, he betrayed no distinct manifestation of derangement; yet his original character was much changed, and it was the conviction of those who enjoyed his intimacy that he cherished some of his original delusions to the last.

Fits of Drunkenness, with much Violence or Extravagance, but without Distinct Delusion.—Some men drink daily to excess without ever showing any violent excitement, even that of intoxication, till, their constitutions being gradually broken, they fall into a premature grave. Of this description not a few are attacked by delirium tremens, and in these its complications are numerous, while the disease is proportionately dangerous.

Others, again, are subject to fits of drinking. They go on the *spree*, to use a vulgar expression, sometimes for a day or two, sometimes for a week or fortnight, or even for a longer period, and then abstain, it may be, altogether, for a longer or a shorter time. In this way a man may live for a good many

years if the intervals of sobriety be considerable; and at times these extend to several months. But this drunken paroxysm may readily be confounded with delirium tremens, particularly if the patient, being of the labouring order, and less trained to carry his liquor decently before the public, be laid hold of by the police, and sent to an hospital. Such a paroxysm may continue for a fortnight or more without any illusion or any symptom which entitles the drunkard to that immunity for crimes which is now conceded to the victim of delirium tremens.

A man under this drunken paroxysm is often guilty of great violence, yet that violence is under a kind of restraint. He breaks furniture, turns his wife and children out of doors, and commits every extravagance and absurdity within his own house. That he does not often fall into the hands of the police, if his station be above that of the labouring class, is only the stronger proof of his being able and willing to exert control, unless where he feels himself to be lord and master, as in his own house.

The quantity of spirits consumed in a prolonged paroxysm of this sort, especially where money is not wanting, is wholly incredible. It does not, in general, produce the ordinary symptoms of intoxication, or at least these symptoms, if produced at first or occasionally, pass away during sleep, and there remains a restless active state of mind, kept up by the repetition of the stimulant at short intervals. The craving for this continued supply of spirits is now irresistible, and the least attempt to interfere with its gratification provokes the utmost violence of temper, if the persons around be under the control of the drunkard, as members of his family and the like. If those beside him be not likely to be influenced by threats and violence to connive at the excesses he is practising, all manner of cunning is developed, most commonly with falsehood, to an inconceivable extent;—for there is this in common to the drunken paroxysm with insanity, that, even in persons whose ordinary sentiments in health are honest and upright, there is no reliance to be placed on what they say; and this strikes us the more as being necessarily oftener observed in the female sex when under the influence of this dreadful malady.

Even when no opposition is offered to his will, the drunkard often displays the utmost violence of temper; nothing can please him, he pours forth volleys of abuse on his children who are exerting their utmost to gratify his wants. The secret of this last kind of violence is manifestly his dissatisfaction with himself; he feels conscious of his misconduct and of the injury he is doing to his own health, and insensately pours forth the ill-humour he is in with himself upon the members of his family.

When the quantity of spirits taken daily is great, and the paroxysm much prolonged, the drunkard can neither be advanced in life nor weak in the digestive organs. The youngest and the strongest must at last yield to the power of the stimulant. Sickness at stomach begins to prevail, and, finally, severe fits of vomiting occur, of greater or less duration; after which, the drunkard falls into a long sleep, and often awakes next morning fit for his usual employment. The periodic character of the vice may be retained for a long time; for example, for twelve or fourteen years. Most commonly, however, after a time the intervals become shorter and shorter, and the mode of the drunkenness changes to that of daily indulgence, to such excess as, if not to unfit the victim for business, at least to undermine his health and lead to a premature death.

It would be surprising if one description, such as that just given, could include all cases of the same unhappy character. There are many varieties depending on the age, sex, position in society, and the personal peculiarities of the victim. Nevertheless, there are many points in common, and, in particular, there is the negative diagnostic sign, namely, the absence of delusions, such as compel belief and lead to action.

In a case of this kind, of a very extreme description, which was under my observation for more than fifteen years, till he was cut off by a chronic malady, the patient knew well that he exposed himself each time to the risk of an accession of delirium tremens, yet in all that period he never felt its

approach but once; he took alarm when he became sensible of illusions which he could not repress, and instead of leaving his family as usually happened, to send for the doctor, he ran to seek him himself. Being got home to bed he was soothed to sleep without opium, by continual assurances that nothing preternatural was in the room; and the disease made no further progress.

It is not to be denied that an impairment of the power of self-restraint is common to every form of considerable intoxication. But many facts show how far it is from being wholly lost, and how far it is possible for the rules of society to compel its cultivation. The impairment of self-restraint is seen remarkably exemplified in the intoxication of very young men not yet trained to manners, and in that of men in the lower orders, on whose minds the necessity of orderly conduct has not been authoritatively impressed. With this latter fact, the observation of the late Duke of Wellington remarkably coincides, namely, that officers raised from the ranks often fail to carry their liquor like gentlemen. On the other hand, it has been a frequent subject of remark, that a person already beginning to talk extravagantly under the influence of liquor is restored to sobriety by the entrance of a stranger or of one in whose opinion he is desirous to stand well. Innumerable similar evidences will occur to every one to the same effect, or of the power of self-restraint which can be exerted even in deep intoxication. It is true that even in delirium tremens the patient may sometimes be reasoned out of his follies; but this is only for a time, the delusion which exists soon resumes its empire, and then all its extravagances recur as before. Till delirium tremens is established, the effects of drink are very different from madness. The notion that a man simply under the influence of strong liquor has no power of self-control, should receive no countenance.

The incident I am going to relate illustrates the kind of double self which is often seen active in the prolonged paroxysms of drunkenness. A man engaged in an extensive business was addicted to long fits of drinking, with considerable intervals of complete abstinence. During one of those fits he got into a quarrel with a neighbour, owing to the intolerable noise he was making far on in the night, and the police had interfered. His family, thinking to avoid exposure, sent to my house, which was near, for aid. Having got him into his own house, I thought to persuade him to go to bed. He said that owing to having to go out at six o'clock it was not worth while to go to bed, as it was now past four o'clock. I rashly said that I would not go away unless he went to bed. But he remained determined, as, he said, he had to set men to some new work at six o'clock. Finding I was resolved to stay, he began to talk on common topics, and we got into an animated discussion on Pulmer's trial, then recently over. During this time he asked for no more liquor. When it was near six o'clock he started from his chair and went to another part of the house. I heard him shouting loudly for something he wanted, while nobody answered. I then heard a loud crash, and going out I met him brandishing a heavy carpenter's axe, with which he had just split the top of a mahogany table into two; he seemed much excited, and coming towards me with axe uplifted, he said, "What's to hinder me?" I said, "No; you know that I never come here but for your good." "I dare say you are right," he said in a subdued tone, laying down the axe. We went out together. He walked steadily, but with a kind of effort, his eyes on the ground. The paroxysm continued for a few days more, the consumption of spirits, especially in the night, being enormous; finally, as usual, vomiting came on, and, after a long sleep, he recovered his natural character, becoming in the highest degree penitent, yet at that time hopeless of reformation.

Delirium tremens presents so great a similarity in its course, under the most opposite circumstances, as to approach to the character of a specific disease, like small-pox or measles, in the train of symptoms exhibited. The description of this disease which best accords with what I have myself witnessed, is contained in the memoir by Dr. Ware, of Boston. His account extends beyond what I can vouch for, namely, to the history of the malady

when left to run its course without treatment. In the following condensed view I rely on his authority particularly for nearly all that belongs to that aspect of the disease.

The premonitory signs are not always present. These are tremors of the hands and of the lower extremities, and, in particular, of the tongue; tremulousness of the voice, with indistinct articulation; a hurried manner, general anxiety; startings and twitches of the limbs. These premonitory signs, if not peculiar to such instances as are conjoined with great disturbance of the digestive organs, are at least seldom absent in cases of that kind. Whether such signs precede the disease, or whether it develops itself of a sudden, the subsequent course is little interfered with. When the patient is under observation from the first, it is found that for one or two nights before the delirium begins, he sleeps ill, is troubled with uneasy dreams; he even gets up and wanders through his house. The dreams assume more and more the character of realities; but so long as the patient can dismiss the visions of his sleep as unsubstantial, it seems possible to check the disease. This seems to be sometimes accomplished, both at this stage and at the earlier stage, when the occasional premonitory symptoms above enumerated occur. Persons who have been several times affected with delirium tremens feel themselves safe so long as, on waking, they can withhold belief in their dreams, however vivid. Sometimes there is a night or two of complete watchfulness before the delirium is apparent, yet very often the delirium begins by an impossibility of shaking off belief in the reality of the last dreams. On rare occasions the medical attendant is the first to detect the delirium; more frequently it has been already remarked by the family, and is not exhibited at the medical man's subsequent visit, particularly if he is a stranger, so that the patient puts himself more on his guard. Nevertheless, when no actual delirium is detected, the natural manner of the patient is changed, something will seem suddenly to catch his attention, towards which his eye is all at once intently directed. His voice is altered; he speaks louder, or with more haste than usual; he starts from bed or from his seat, and attempts to gather something from the carpet, or looks under the sofa or the bed, as if he imagined something were there; he will even insist on ripping open the bolster or the pillows to get rid of some animal lurking there. If such symptoms occur in the early part of the day there is usually distinct delirium established before evening.

There can be no doubt, I think, that if sleep can be procured even during the first night after the delirium has been thus completely established, the disease, as far as the delirium is concerned, is either removed or materially shortened.

But when the disease is left to itself during the first night of complete delirium (and that I have had occasion to remark), there is entire watchfulness, and the delirium increases during the first hours, and declines somewhat towards morning. In the morning it continues unaltered in character, but the patient is more tractable than during the night. The second night is generally worse than the first, and though there is some alleviation towards morning, yet in the early part of the third day the patient is worse than on the second day; but when the disease is to have a favourable termination the delirium of the third night is less violent than that of the preceding. The disease then, it appears, terminates spontaneously, either on the evening of the third day, or in the early part of the night, but more commonly not till the latter part of the night, or the morning of the fourth day. In those who have had repeated attacks the malady is apt to be protracted longer, even when the event is to be favourable. When the attack is to terminate unfavourably the delirium continues undiminished till the fatal event takes place.

The delirium in this disease is not often violent. The strange vividness of the illusions seems to impress the patient with a kind of awe. Nevertheless he is sometimes very noisy, and utters loud shrieks. These, I have thought to result from an aggravated anguish of mind, founded on mental distress existing prior to the excess in drinking. The delirium has a more

coherent character than that of fever. The patient can sometimes be reasoned out of his delusion for a while, but it quickly recurs.

Too much attention cannot be bestowed on the exact character of the delirium in every case regarded as belonging to this disease, for as often as the delirium does not square with the received standard, or any deviation otherwise takes place from the ordinary type of the disease, a new diagnosis should be instituted in the well-grounded fear that what has to be dealt with is not delirium tremens, but some other of the mental disturbances connected with excessive drinking.—*Edinburgh Medical Journal*, Nov. 1863, p. 389.

12.—CASE ILLUSTRATING THE TREATMENT OF DELIRIUM TREMENS BY DIGITALIS.

By Dr. M. H. SLOANE, Esq., Ovenden, near Halifax.

During the month of November, I was consulted by Mr. B., who appeared in a feverish and excited state. He admitted that he had been drinking for some days (I afterwards ascertained that he was doing so at the time I saw him). I ordered him a little medicine, and on my being requested to see him the following evening, I found him with all the symptoms of delirium tremens, totally unfit to attend to his business, could not sleep, and he told me he had not slept for three nights. I gave him opium with alcoholic stimulants, without the slightest effect. He talked incessantly, and fancied all manner of strange things. I was now led to try the tincture of digitalis. I gave him at night a draught containing two drachms of the tincture, and requested that he should be watched. In the morning I found him better, having slept at intervals through the night. I then gave him a six-ounce mixture, containing tincture of digitalis, two drachms, and camphor water: one ounce to be taken every three hours. He had a relapse in the evening, and I then gave him a draught containing three drachms of the tincture of digitalis. He slept that night five hours continuously, and was considerably better in the morning, but exceedingly weak, having taken no food for several days, and having suffered from sickness during the time he was taking the digitalis. I gradually reduced the dose of the tincture in his mixture, and in two days he was taking a quinine mixture and beef-tea, and was able in a few days to resume his mercantile duties.—*Lancet*, Jan. 2, 1864, p. 30.

13.—ON THE USE OF DIGITALIS IN THE TREATMENT OF INSANITY.

By Dr. C. L. ROBERTSON, Medical Superintendent of the Sussex Lunatic Asylum, Hayward's Heath; Editor of the *Journal of Mental Science*.

[The object of giving digitalis in cases of insanity is to procure its sedative action, which is most marked in many cases. It is observed by Dr. Mayo, late President of the College of Physicians, to be the most valuable nerve sedative we possess, whilst opium is the least so. Dr. Robertson considers opium of great value in the treatment of melancholia, but as a general nerve sedative he quite endorses Dr. Mayo's observation as to the value of digitalis.]

Physiological Action of Digitalis on the Cerebro-spinal System.—The physiological action of digitalis is still undecided. The generally received opinion that it exercises a depressing influence over the action of the heart, and therefore leads to accumulation and coagulation of the blood in its cavities, has been questioned by Dr. Fuller, who, on the contrary, thus sums up his experience of the action of this medicine on the heart:—

“1. During many years, I have observed, that the cases of heart-disease most benefited by digitalis have been those in which the heart has been weak and dilated, and the pulse feeble and irregular. In these the pulse has become stronger, and steadier, and less frequent, under its action.

"2. In the only cases in which I have known death to occur suddenly during the administration of digitalis, the heart has been hypertrophied and firmly contracted. This may have been a coincidence; but, viewed in connexion with the results of experiments to which I shall presently refer, it is, at least, a suspicious fact.

"Dr. Dickenson has pointed out (*Med. Chur. Trans.*, vol. xxxix.), and I have repeatedly verified his observation, that digitalis, if given in full doses, induces violent uterine contraction, and checks uterine hemorrhage; and, inasmuch as its action in staying menorrhagia and uterine hemorrhage is permanent, it seems fair to conclude that it gives tone to the capillaries, and increases their contractility.

"4. This view is borne out by what I have long since observed relative to its action in arresting hæmoptysis; viz., that, whilst effecting the object required, it does not weaken, but rather increases, the force of the pulse, though it lessens its frequency.

"5. When patients die of delirium tremens, the pulse is usually rapid and fluttering before death, and the heart is found weak, flaccid, and distended with blood afterwards. These are just the cases in which, on the commonly received doctrines as to the action of digitalis, the drug ought necessarily to prove fatal, and yet modern experience has shown that in these cases it is tolerated, even in excessive doses. My impression is, that its remedial action in these cases depends on its stimulating the heart, subduing its irritability, and increasing the tonic and contractility of the heart and capillaries, so that the brain is better supplied with blood and the effusion of its more fluid parts, which gives rise to the "wet brains" of habitual drunkards, is avoided.

"6. It has been proved by experiments on animals (Dr. H. Jones) that when death is induced by digitalis, the heart is not flaccid and distended with blood, as is commonly supposed, but, on the contrary, empty, contracted to the utmost, and in a state of tonic spasm. All these facts confirm my view as to the action of digitalis; and if it is correct, its importance in relation to the treatment of cardiac dilatation can hardly be over-estimated."

Dr. Arlidge in his *Report on Foreign Psychology* (*Journal of Mental Science*, July 1863), gives the following summary of Professor Albers's researches on the therapeutical action of digitalis:—

"1. It reduces the pulse in frequency, but at the same time does not disturb the rate of breathing. Even when the heart is empty and brought to a standstill, the regularity of the respiration proceeds. 2. Alterations in the urinary secretion; an increased quantity of urine in the healthy, and still a greater augmentation when the drug is given in inflammatory dropsy accompanied by inflammatory irritation of the serous membranes of the chest and abdomen. It subdues the inflamed state of the kidneys, and restores them to their normal functional activity. In mental disturbance dependent on cerebral inflammation, especially of the serous membrane, digitalis exerts a remarkably curative effect when given after preliminary abstraction of blood and the use of antiphlogistics. 3. The solid constituents of the urine are increased in amount, and particularly the urea, as shown both by chemical examination and by an increase of specific gravity. This alteration in the urine becomes manifest when the digitalis has reduced the frequency of the pulse and produced a feeling of lassitude. 4. Reduction of the temperature of the body, and its equalisation. 5. Vertigo, lassitude, debility, and moroseness, accompanying the reduction of the pulse by the drug. The last-named condition is a remarkable symptom associated with the operation of digitalis on the system. 6. This medicine is applicable only to those cases of madness dependent on some inflammatory lesion."

The physiological action of digitalis is a subject which would well repay a carefully conducted series of experiments. Unfortunately, I am unable to contribute to our information on this part of the question. With neither the skill, leisure, nor opportunity, to conduct such observations, like most other physicians engaged in active practice, I am content either to apply to the cure of disease, the results obtained by the scientific research of others, or, as at present, to follow the teaching of empirical experience. So far is the

art of medicine yet removed from the certainty and exactness of science. The following remarks by Dr. Pereira state, I suspect, all that is yet known of the physiological action of digitalis in the presence of cerebral disease :—

"Foxglove may prove occasionally serviceable by repressing excessive vascular excitement which sometimes accompanies cerebral affections. *Furthermore, the specific influence of this remedy over the cerebro-spinal system may now and then contribute to the beneficial operation of foxglove. But the precise nature of this influence not having as yet been accurately ascertained, while the pathology of the above-mentioned diseases is involved in considerable obscurity, it follows that the therapeutic value of this influence can only be ascertained empirically.*"

Medicinal Use of Digitalis in the Treatment of Insanity.—I wish now briefly to state the practical results of my experience in the use of digitalis in the treatment of insanity.

Dose and Method of Administration.—With a wholesome fear of a coroner's inquest, I have not ventured on half-ounce doses, and I can report nothing as to their effect. I believe they would be too much for the average stamina of our patients. I have never given more than drachm doses; and I have usually found two or three days of such doses three or four times a day brought on the poisonous symptoms of the drug, with intermittent pulse, great reduction in frequency, and oppressive nausea. The respirations were also reduced in number; and the specific gravity of the urine lowered, and so far as I know, the quantity increased by the use, in drachm doses, of the tincture.

[Dr. Robertson gives half a drachm of the tincture as an average dose.]

Forms of Insanity in which Digitalis has been employed.—I have, during the last year and a half, exhibited digitalis in the form of the tincture in twenty to thirty cases of maniacal excitement, recent and chronic, with varying results.

First, as to the failures. In three recent cases of mania depending on uterine excitement, two in young girls and one at the change of life, I steadily pressed the use of the drug until its poisonous effects, as shown in sickness and vomiting and intermittent pulse, were produced. The dose given was, in each case, half a drachm of the tincture three times a day. The result was simply that the patients when very sick were quiet, and that so soon as the nausea passed off the excitement returned. Again, in two severe cases of recurrent mania, I only produced sickness and depression of the pulse, and no amendment of the mental symptoms followed this physiological action of the remedy.

On the other hand, my success with this drug in cases of general paresis, in the second stage, that of mental alienation with symptoms of maniacal excitement (and in which so often in private practice aid is sought pending the patient's removal to an asylum), leads me to regard its action in controlling cerebral excitement as quite specific. I have, of course, had my share at Hayward's Heath of these troublesome cases—and how noisy and wearing they are every asylum physician knows to his cost—and they have ceased to give any trouble under the calming action of digitalis.

It is with these cases of general paresis, in the stage of mental alienation with maniacal excitement, that the assaults and injuries in asylums (which from time to time unfortunately occur) arise. There is such a reckless violence present, on which no moral or physical obstacles make the slightest impression, and this stage lasts so many weeks, if not months, that any remedy at all capable of controlling this state of things deserves a most careful trial. And such a remedy I believe we possess in digitalis, continued steadily day by day, while the tendency to excitement lasts, in half-drachm doses two or three times a day, or oftener.

It acts in every case of the kind in which I have given it as a specific, calming the excitement, and enabling the patient to pass without wear or irritation through this stage of the malady. Its action has been to steady the pulse, and thus apparently to supply the brain better with blood, and so to obviate the tendency then existing to effusion of serum, consequent on

the inflammatory process going on, as we believe, in this stage of the disease in the arachnoid and pia mater. The researches of Wedl, quoted by Dr. Salmon in his able paper on general paresis, are conclusive as to the inflammatory process present in this stage of the disease.

In such circumstances the only visible result is mental quiet, and the action of the drug appears to be that of a cerebro-spinal narcotic. The functions of the stomach and bowels are not affected by its use; the appetite rather seems to improve. The pulse often remains unaffected for weeks under the use of half-drachm doses, and the only result is the specific action on the cerebral excitement. I have often found one day's intermission of the medicine bring on all previous symptoms of excitement. I have prepared a detailed history of six cases of general paresis which I have thus successfully treated. The limits of my present communication necessarily prevent my inflicting their detail on you; moreover, every member of this Association has such opportunity of testing the results of my experience, that it is sufficient for my present purpose thus generally to indicate the forms of insanity in which I advise the use of this drug.

I have also continued for many weeks with benefit to administer half drachm doses of the tincture of digitalis in cases of chronic mania, with noisy and destructive habits. I have at this moment two such cases under treatment. In one the irritation is evidently depending on impending paralysis.

There is a third form of insanity—mania with phthisis (not unfrequent in private practice also), in which I have found the occasional use of the tincture of digitalis of great benefit. This form of mania has been so exhaustively treated by Dr. Clouston, in the *Journal of Mental Science* for April, 1863, that this reference to its treatment will for my present purpose suffice.—*British Medical Journal*, Oct. 3, 1863, p. 364.

14.—ON THE TREATMENT OF CERTAIN FORMS OF EPILEPSY BY BROMIDE OF POTASSIUM.

By Dr. ROBERT McDONNELL, Surgeon to Jervis-street Hospital, Dublin.

[The object of this paper is to draw the attention of the profession to the use of bromide of potassium as a remedy in certain cases of epilepsy. When the cases are properly selected it is a remedy of much efficacy. Sir Charles Locock, Dr. Brown-Séquard, and Dr. C. Bland Radcliffe have already recommended its use.]

Dr. Radcliffe says:—"I can testify that this remedy has proved more or less serviceable in cases the most dissimilar in character; so serviceable that the name of Sir Charles Locock ought to be remembered with gratitude by every epileptic, and by many suffering from other forms of convulsive disorders."

Sir Charles Locock, writing in 1833, says:—"About fourteen months ago I was applied to by the parents of a lady who had hysterical epilepsy for nine years, and had tried all the remedies that could be thought of by various medical men, myself among the number, without effect. This patient began to take bromide of potassium last March twelve-month, having just passed one of her menstrual periods, in which she had two attacks. She took ten grains, three times a-day, for three months; then the same dose for a fortnight previous to each menstrual period; and for the last three or four months she had taken them for only a week before menstruation. The result has been that she has not had an attack during the whole of this period. I have only tried the remedy in fourteen or fifteen cases, and it has only failed in one, and in that one the patient had fits not only at the time of menstruation but also in the intervals."

I have learned from Dr. Brown-Séquard, who has used the bromide very

extensively, that he also entertains the highest opinion of its efficacy. For my own part, being full of scepticism with regard to the utility of many drugs much boasted of, and not, I must own, being rendered less sceptical by the large per centage of cures effected in the fourteen or fifteen mentioned by Sir C. Locock, I commenced using the bromide without being very sanguine as to success. I now confess that I have found it in some cases a drug of remarkable efficacy, although not so powerful in altogether stopping the attacks as it has been in the hands of Sir C. Locock.

[Several cases are then related, and the writer thus continues:]

These and other similar cases lead to the belief that we have in the bromide of potassium a remedy of considerable efficacy in epileptiform disease, when connected with uterine derangement. But in urging my professional brethren to use it in such cases, I would say that it certainly will not be found successful in every case, even of epilepsy connected distinctly with menstrual derangement. I have administered it, with the consent of my colleague, Dr. Banon, to a young woman in the Montjoy Female Convict Prison, who had puerperal convulsions at the birth of her first child, and has since been epileptic, her attacks occurring for the most part at the menstrual period. In this case although I expected much from it, I cannot say that any substantial benefit has arisen from its use, yet it has been given perseveringly and in large doses.

With reference to the dose, from a not inconsiderable experience in the use of this medicine, I can state that it may be given with perfect confidence and safety, in much larger quantities than it is usually prescribed. I have given thirty or forty grains, and even more, three times a-day, for months without observing any bad results; and of this I am certain, that often such a dose as ten grains, three times a-day, is too small to develope any good result.

Although the independent testimony of several practitioners points to cases of epilepsy, with derangement of the uterine functions, as those in which the bromide of potassium is most likely to be beneficial, yet there are others in which its effects are unquestionably good.

A lad, aged eighteen years, was admitted to the hospital of the Montjoy Convict Prison, on April 12th, 1863. He was said to be epileptic, having three or four fits in a day. I myself never saw him in one; but at the time of my visit I found him dull, stupid, and slow of speech. I was struck by the peculiar odour exhaled from the skin of this patient; it was the same mixture of garlic and brass noticed in a former case; and it was the similarity in this respect alone that suggested to me the idea of giving him a medicine which had been so useful in the case alluded to. I commenced with ten-grain doses of the bromide three times a-day, increased after one week to fifteen, and in a fortnight to twenty grains. This boy apparently completely recovered, so much so that he was not recommended for removal to an associated prison, as is usual with confirmed epileptics; and indeed not having myself seen him in any attack, I was inclined to doubt the correctness of the diagnosis, and regard him as a malingerer. My friend, Dr. Mayne, however, who had one day accompanied me to visit a patient in hospital recognized the lad as having been formerly a patient under his care in the South Dublin Union Workhouse. On his assurance I gave up the notion of the boy being a malingerer, and I now think his case may fairly be regarded as benefited by the treatment.

I do not mean to say that the peculiar odour observed is a sufficient indication whereby one could venture to predict anything like successful treatment, yet the circumstance is worthy of observation; a peculiarly fetid odour from the skin and discharges is common in epileptic patients, as a forerunner or accompaniment of a series of attacks. One can foretell a coming series by the odour of the discharge from an issue or a burn; but the smell to which I have alluded seems to me something quite *sui generis*, and as I have already said is best compared to that of sublimed arsenic.

When epileptiform attacks are traceable to sexual excess in males, I have reason to state with some confidence that the bromide will be found useful; but as my observations on this subject are as yet incomplete, I must look

forward to a further communication concerning it on a future occasion.—*Dublin Quarterly Journal*, Feb. 1864, p. 43.

15.—A CASE OF TRAUMATIC TETANUS TREATED BY NICOTINE.

By Dr. JOHN W. OGLE, Assistant-Physician to St. George's Hospital.

[The following case was treated by Mr. Holmes and Dr. Ogle conjointly.]

The patient, Mary G., a thin, delicate-looking girl, aged fourteen years, was admitted into St. George's Hospital on August 29, 1863, having a long lacerated wound of the soft parts of both sides of the left leg, which had been caught in the spokes of the wheel of a cart. The edges of the wound were much bruised, and a few days after her admission began to slough. Subsequently, the wound became cleaner, and her general health improved under the use of tonics and occasional sedatives, until the evening of September 6, when she complained of what was called "slight sore throat." Croton oil and colocynth were given. On the following morning (September 7) there was trismus, the mouth was firmly closed, and the risus sardonicus existed. The lips were dry, the pulse small, weak, and 156 per minute. The pills had acted once. At noon I was desired by Mr. Holmes to see her with him, and found her lying flat in bed, with the head raised, the eyes half closed, the lips tightly drawn across the gums, the upper teeth and gums being freely exposed. She was utterly unable to open the mouth, and the muscles of the face were perfectly rigid, especially the masseter and buccinator on either side, and the muscles of the shoulders and back of the neck. The skin was cool; the pulse feeble, and about 135 per minute. The intellect was quite clear. Both the pupils were rather large, but equal, and acting to light. Ordered a repetition of croton oil and the compound colocynth pill, and a lotion to the wound, consisting of half an ounce of extract of belladonna to a pint of water. At 5 p.m. the bowels had acted very freely. At this stage I talked with Mr. Holmes on the advisability of amputating the limb, seeing that, owing to the nature and extent of the local injury, it would have been quite impossible to have divided separately such nervous trunks as supplied the parts implicated. Mr. Holmes consulted with two of his surgical colleagues, Mr. Pollock and Mr. Lee, and, in consequence, the idea of amputation was rejected, as Mr. Holmes said, on the following grounds:—1. We thought that it was too late, as the irritation, or the diseased condition, or whatever you like to call it, would be propagated by this time up the nerves, far beyond the point of section in amputation. 2. We did not think it impossible that the patient might survive without amputation. 3. She seemed so weak, that amputation would be a serious danger to her, as would (I think) the necessary chloroformisation. 4. No success has, as yet, attended amputation of the thigh, I believe.

September 8, 9 a.m. There had been very little sleep, but the patient had swallowed between one and two pints of beef-tea. There had been no spasmodic action of the muscles of the back or belly (opis- or emprosthotonos). In all important points the symptoms were the same as on the evening before. Pounded ice was ordered to be applied along the spine enclosed in a piece of intestine. 11.30 a.m. The risus sardonicus had increased, the cheeks were flushed, but the rest of the face was pale. At her own request she was raised in bed, but the attempt to swallow a teaspoonful of porter, which she wished for, brought on spasm of the muscles of the neck and face, and she swallowed it with great difficulty; a few minutes afterwards she swallowed it with great ease. The respiration was quiet, at 36 per minute; the pulse 140. The teeth could be separated a little. As much strong beef-tea and wine as possible were ordered to be given; and it was agreed to try half-drachm doses of spirits of turpentine with the acacia mixture and water, every four hours. One dose only could be given, owing to the amount of distress which it caused. At 3 p.m. it was agreed by Mr. Holmes

and myself to try nicotine; and, accordingly, after procuring a genuine specimen from Messrs. Bullock and Reynolds, we proceeded, at 9.15 p.m., to give four drops of a solution containing half a grain, in ten minims of water, in a little brandy-and-water. At this time the forehead was much wrinkled; the abdominal muscles, as well as those of the neck and shoulders, were very tense. There was no hiccup, but great difficulty in swallowing. The intelligence was unimpaired; the pupils dilated as before, but acting readily to light. Pulse 140, and the skin very cold. The urine was passed along with the fæces. At 11 p.m. she stated that she felt altogether easier, and the general aspect was certainly improved. The pulse was 144, and the skin perfectly warm. The heart's action was greater than it had been. There were no spasmodic seizures, but the muscles of the abdomen were still very rigid. There was no increased perspiration. It was determined to administer an enema containing eight drops of the above-mentioned solution of nicotine, along with beef-tea and a little brandy; and it was ordered that a similar injection should be exhibited at two o'clock in the course of the night. The first injection was retained for an hour without producing any particular result, as was also an injection containing egg and brandy and beef-tea. At 5.30 a.m. on the following morning the nicotine enema was repeated, but rejected almost entire.

9th, 9 a.m. There had been no sleep, and slight "wandering" had existed in the night. The patient complained greatly of the throat, and the tongue was very sore. The neck was very rigid, and the muscles of the lips stretched as before. Occasionally, general twitchings of the entire body existed, and especially starting of the injured leg. The patient raised the arms readily, and held on by the bed-rope as usual. No perspiration had existed, but the skin was warm; pulse 124. I gave the patient eight drops of the nicotine solution with brandy and water, and desired it to be repeated at twelve a.m. The first of these doses was retained in the stomach; the second could not be swallowed, owing to spasm of the throat, and, in its place, I ordered twelve drops of the solution to be administered with beef-tea and egg as an enema. About this time (12.30 a.m.) attacks of opisthotonos came on (from four to eight in the hour), during which she had the sensation of falling down. These attacks were not very severe, though sufficiently marked, but became considerably intensified when attempts were made to give her the medicine. Much spasm also about the throat and "frothing" at the mouth was occasioned. Very little of the medicine was swallowed, but she could open the mouth about a quarter of an inch. A nutritive injection was retained. The pulse was regular, and 136 per minute. At 12.55 p.m., twelve drops of the nicotine solution was administered in a small enema. No spasm arose during its exhibition.

Subsequently, Mr. Holmes and myself determined to try the use of the nicotine by subcutaneous injection; and accordingly, at 2.20 p.m., five minims of it, along with five of water, were injected under the skin of the left arm, which caused a slight blush of redness over the part where the injection was made. At 2.30 an attempt to swallow, some porter created excessive spasm. At 3.15 the redness occasioned by the injection had nearly disappeared. At 3.30, attempts to swallow produced violent spasm of the muscles of the throat, lasting about five minutes. At 4 p.m., the arrival of the patient's mother caused much agitation and general spasm. At 4.30, Mr. Holmes injected ten minims (equal to half a grain of nicotine) into the tissues at the back of the neck. At 5.40, the same injection (ten drops) was repeated in the left arm, and was followed by some spasm. Subsequently an attempt was made to pass a flexible gum catheter through one of the nostrils, and down into the œsophagus, so as to give a nutritive injection, but most violent and long-continued spasms, with great lividity of face, and apparent suffocation, were in consequence, produced, and the fluid was returned through the mouth. At 5.55, the abdomen was less hard and tense. At 6.30, pain was complained of at the præcordial region, and the administration of a beef-tea injection induced a *most severe general spasm*, the injection being at once returned. At 7.15, a *quantity of the nicotine solution*, equal to half a grain, was again injected under

the skin. At 8.15, it was reported that since the last injection there had only been slight twitchings of the facial muscles, and the teeth could be separated a little more. Pulse 140 per minute. A few drops of water were swallowed with less spasm. At 8.40 the subcutaneous injection was repeated. At 10 p.m., the patient was reported to have been more restless. The pulse was 154 per minute. The skin somewhat perspiring. 11 p.m., the restlessness continued. The abdomen was much softer, the muscles being less tense and rigid, but she seemed weaker. Pain at the throat complained of. 11.15. Twenty drops of the nicotine solution (equal to one grain) were injected into the subcutaneous tissues of the right arm. During the operation spasm came on, and gradually increased in intensity, and so affected the respiratory muscles that the face became livid, and breathing was altogether arrested; but after cold water had been dashed on the face, and vapour of ammonia applied to the nostrils, she gradually came round, the pulse being 164 per minute. 11.30. The breathing was long drawn, and of a sighing character. Severe general spasm returned, lasting about four minutes. By slight pressure upon the lower jaw the mouth could be opened to the extent of half an inch. At 11.44, the breathing was sighing, and irregular as to rhythm. Pulse 144, regular.

10th, 1 a.m. Breathing the same. Pulse 150 per minute. There was a little moisture on the palms of the hands. The abdominal muscles were quite lax, but the general spasms were so continuous, though not violent, that it was thought advisable to repeat the injections of nicotine. The pupils were almost quite inactive under the influence of light. The breathing continued to have an irregular character until about 3.30 a.m., when it became very much impeded, and the spasms continued throughout, though slight as to intensity. She died at 4.40 a.m.

Post-mortem examination was not permitted.

Such are the painful records of this case, in which the use of nicotine proved unavailing. Looking to the history and details of the cases described by Dr. Haughton, I was at first sanguine as to our results in this recent one, especially as at one time some extenuation of the severity of the symptoms appeared to show itself. Possibly the local injury, considering the tender age and delicate constitution of the patient, may have been so extensive that its results would have been intractable under any mode of treatment. Possibly, again, the nicotine may have been not so potent as I had thought, or I may have been too sparing in its administration, being fearful, as I naturally was, of giving it in over-large quantities, knowing what evils have, in other hands, attended the use of tobacco when carelessly or improperly used.

Of course, all these supposable causes of failure in the use of nicotine may equally be assumed in the case of other remedies which are so frequently resorted to, and with a like want of success; and are sufficiently probable to allow of hope (considering the partial success which has appeared to attend its use as related by Dr. Haughton and others, and also the results of the use of tobacco in tetanus), that the nicotine may yet prove a serviceable weapon in our hands against a disease, in connexion with which more than with any other, except, perhaps, hydrophobia, is the aphorism—*"Vita brevis, ars longa, occasio praeceps, experientia fallax, judicium difficile"*—more justly applicable.

As regards the particulars—the individual symptoms which occurred in this case I will make no further observation, as such would be foreign to the scope of these remarks.

Before closing, I cannot refrain from quoting a few lines from Mr. Simon's note before mentioned, in which he further touches on the treatment of tetanus. After referring, as above stated, to the successful treatment of tetanus by the tincture of the sesquichloride of iron, he proceeds to remark,—*"Once I treated a case of acute tetanus with belladonna. I think the drug was amply tried, but I am not sure that the case (which, perhaps, was one of centric tetanus) was quite the fittest which could have been selected, i.e., on the theory which would seem likeliest to justify the trial of belladonna."* Again, Mr. Simon, alluding to the general treatment of tetanus, says:—*"The other*

day, at Constantinople, Marko Pasha, the Sultan's doctor, told me that he had cured a large number of cases of tetanus—I believe nine out of eleven—by the use of opium, which he rubs in right and left, and gives in enemata, till profound sleep (! coma) results from it. His quantities were large; but, he said, none had died of opium, and all who slept recovered."

These remarks, though not directly relative to the immediate subject and purpose of this communication, are so interesting, that I could not desist from quoting them in this place.—*Med. Times and Gazette*, March 12, 1864, p. 278.

16.—TETANUS FROM BURN TREATED BY THE APPLICATION OF TOBACCO TO THE RAW SURFACE OF THE WOUND.

By — TYRELL, Esq., Surgeon to Jervis-street Hospital, Dublin.

[The following case was read by Mr. Tyrell before the Surgical Society of Ireland. The patient was six years of age, and had a burn extending from the elbow to the wrist. Cotton-wadding was at first applied to the raw surface, and an anodyne was administered. There was no pain in the arm unless moved. In rather less than three weeks well-marked symptoms of tetanus set in.]

As his bowels were confined, I directed five grains of calomel to be given at once, and in three hours ten grains of compound powder of jalap. I also took off the dressing from the arm, which was partly healed, but in three separate spots small ulcers were present. I then made an infusion of Cavendish tobacco by infusing half an ounce of cut Cavendish in half a pint of boiling water, and when the infusion became sufficiently cold, I rolled the arm up in lint saturated with the infusion, and directed the lint to be kept constantly wet. Wine and strong beef-tea to be given during the night in small quantities and often.

On the morning of the 9th the night nurse stated that the bowels were well freed, and that the child had slept for an hour, and had occasional spasms during the night. He took four ounces of port wine and the same quantity of beef-tea. He looked, however, worse, the tetanic expression better marked, and the muscles of the neck and abdomen if possible more rigid than on yesterday evening. I ordered the lint on the arm not to be changed, but to be constantly moistened with the tobacco infusion, and the wine and beef-tea to be continued. On the 10th the resident, who saw him frequently during the night, reported that he slept for three hours, and took without much pain six ounces of wine and half a pint of beef-tea within the twenty-four hours. The tetanic face is less marked, he opens his mouth wider, and on the whole there was a marked change for the better; I directed the same treatment. On the 11th improvement more marked; took six ounces of wine and one pint of beef-tea.

12th: Much better in every respect; took the same quantity of wine and beef-tea.

On the 13th I considered him out of danger, as he could open his mouth almost to the full extent, was quite gay, and asked for a chop, which I readily granted. As there still remained some rigidity of the neck and abdomen, I continued the application of the tobacco until the 15th, when I removed the lint, and carefully washed the arm, which was quite healed, except in one spot about the size of a sixpence. There still remained the rigidity of the arm, nor was the expression of the face natural, and indeed, strange to say, the arm is yet rigid, but not at all painful.

In bringing this case before the Society, I do not wish the members to think I look upon it as one of acute tetanus, but it was a well-marked case of subacute tetanus, as my colleagues can testify.

It is now more than forty-two years since Mr. O'Beirne, surgeon to the hospital to which I have the honour to belong, called the attention of the profession to the use of tobacco, and since that time it has been occasionally

used. But it was not until the researches of the Rev. Dr. Haughton in 1856, upon the physiological action of nicotine and strychnine upon frogs, drew attention to the power which the former substance had over poisoning by the latter. In March, 1862, he read his well-known paper before the College of Physicians, upon the treatment of tetanus by nicotine, and since that time tobacco is no longer used empirically, but on well-known physiological principles.

It occurred to me when the subject of the present case became affected, that if tobacco or its active principle was of service when given internally, *a priori*, it should be more so in peripheral or eccentric tetanus, if applied locally, by paralysing the nerves of the affected part from which the irritation proceeded, and thus remove the cause of the tetanic spasms. That it did so I believe to be the case at any rate. The attempt was based upon scientific principles, and the patient got well—spontaneously, some will say. Future investigations can alone determine the question. In considering if the same plan might not be adopted in cases of acute traumatic tetanus arising from a small wound, where a decided impression should be made quickly, it strikes me that a solution of nicotine of a known strength applied to the wound might be useful, and perhaps in the idiopathic form, if the cuticle on the back was raised by a blister, the endermic use of the remedy would more quickly bring the cord under its influence, and perhaps with less vital depression than when given internally.

Mr. Poland, in the article on tetanus in Holmes' "System of Surgery," states that the muscles of the jaw first attract attention, and likewise cites the authority of Mr. Morgan. At far as I have seen, I believe the muscles of expression are affected before those of mastication (I believe my colleague, Mr. S., who has seen a great number of cases, is of the same opinion), and they are the last to relax.

The mode in which the tetanic symptoms came on is unusual: the spasms affecting the limb injured first, and preceding by several days the symptoms elsewhere. This is rare. Mr. Morgan, in his work on tetanus, relates two such cases as having occurred in Guy's Hospital.

Knowing how successful stimulants were in the case read before this Society at a former meeting by Mr. Stapleton, and in how many cases death takes place from exhaustion, I gave a liberal allowance of wine from the beginning, as I am confident, no matter what medical treatment we use, the strength of the patient should be husbanded.

Dr. KENNEDY wished to know the extent of the surface exposed to the tobacco infusion.

Mr. TYRELL said the arm on the inner side, from the elbow to the wrist, was subjected to the infusion, and that the surface was raw at the time he applied the poultice to it.

Dr. KENNEDY said he asked the question, because some time ago he saw a child very nearly poisoned by the application of belladonna. That the tobacco infusion did good in this case was clear enough, but so powerful an agent should be used with great caution. He did not hear the strength of the infusion.

Mr. TYRELL—It was half an ounce to half a pint; but he forgot to say that he did not leave the child under the influence of tobacco without taking proper precautions; for the resident had directions to attend to the pulse, and if the child showed any symptoms of poisoning by tobacco, either by vomiting or depression of the heart's action, to discontinue it. The reason he applied the tobacco locally was, that a child of such tender years could not bear up against the powerfully depressing action of nicotine, and knowing that morphia and other agents had been applied to the raw surface with effect in cases of neuralgia, he thought there was no better way of giving it than by acting on the part directly involved. They all knew from the records of that Society that in most of the cases of tetanus, which had been cured, the liberal administration of stimulants had been adopted from the beginning, and where the patient did not get stimulants or was unable to afford them, the case turned out badly.—*Dublin Med. Press*, March 2, 1864, p. 213.

17.—CASE OF EMPROSTHONOS (?) CURED BY THE USE OF ICE TO THE SPINE.

By Dr. JAMES EDMUNDS, London.

The subject of this report is a married woman, 28 years of age, healthy and intelligent, altogether free from flightiness or hysteria, and of good family history. Her second child is nine months old, and at the breast.

On January 21, she retired to bed quite well, but on rising next morning at 7.30 her fingers were slightly benumbed, and between nine and ten o'clock while dressing the baby, her fingers suddenly "turned in," so that she was obliged to huddle the child up in her arms to save it from falling. This "turning in" of the hands increased rapidly, and caused a cramp-like pain in the arms; and her lower limbs from the knees downwards also became affected in a similar way, but less severely. In about half an hour the pain was so great that she was obliged to sway herself about to try to get ease, and she was so helpless that her husband first lifted her into an easy chair and then fetched a bed down stairs, and laid her upon it. The pain increased, and she could not help moaning and screaming, although her mind and her manner continued clear and rational.

Between 11 and 12 o'clock she was seen by Dr. S. C. Griffith, of London-wall. There was then extreme and rigid flexion of the hands and arms, and her head was so drawn forwards that the backs of the wrists were fixed close to her mouth; the tongue was coated; the pulse was not remarked. Some aperient medicine was ordered, of which she took one dose, and after which she was slightly sick.

At 1 p.m., Dr. Webber saw her in consultation with Dr. Griffith, and Dr. Webber noted her pulse as "slow and weak—about sixty." Sulphuric ether and anti-spasmodics were ordered at once, and a dose of morphia after a few hours in case the pain did not abate. She had intervals of comparative ease, but, nevertheless, continued to grow worse; and at 5 p.m., seven minims of "sedative solution of opium" were administered. After this, all her symptoms were aggravated; and during the evening she suffered so much that her screams could be heard across the road. Her neck became turgid, her respiration somewhat constrained, and she was becoming rapidly exhausted.

At 10 p.m., Dr. Griffith asked me to meet him in consultation; and I did so. At this time her condition was certainly most remarkable. I had seen plenty of screaming hysteria, and a few cases of opisthotonos; but I had never seen a case precisely like this one. She lay upon the bed on the floor on her left side, with her wrists in contact with her mouth, as has been described; her spine was bent forward, and her knees bent and drawn upward, but not to the extent of coming into actual contact with the abdomen. There was an expression of great anxiety and pain upon the face, and the lips were sufficiently retracted to show the teeth; but the expression was not exactly the risus sardonicus which I have seen in opisthotonos, and she could swallow by making a great effort to ignore the tearing, cramp-like pain which occupied her, and which forced from her a continual moaning scream. Her cry was nothing like the passionate scream of hysteria. She was quite rational, and she merely swayed herself about instinctively. Her forearms were hard and rigid, and the wrists were so fully flexed that her hands were forced open, and her legs were similarly affected, but in a much less degree. It was stated that a considerable quantity of pale urine had passed from her. The pulse could not be judged on account of the spasm of the neighbouring tendons. We had the patient held up on to her feet. She could not stand, and her legs were about as much cramped as in a bad case of cholera; but they were not in a state of rigid spasm like that of the forearms.

There was no appearance of hyperlactation; no evidence of albuminuria or uremic poisoning; no history of worms; no traumatic injury, and no clue whatever to any source of eccentric irritation excepting the single fact that her bowels had not acted for three days.

I had never seen a case of emprosthotonos, but this one could be referred

to no other term. Certainly it was not a case of hysteria, and, moreover, it was manifest that, unless speedily relieved, she would die either from exhaustion or spasm of the respiratory muscles. There was evidently some exaltation of the reflex irritability of the spinal cord or some acute cause of nervous irritation, and the indications for treatment were, first, to clear out the bowels; second, to lessen the irritability of the cord, so as to do away with this frightful state of spasm.

The first object was effected by at once placing upon the tongue a purge, consisting of one drop of croton oil and five grains of calomel. An enema of turpentine and castor oil was also administered to free the lower bowel from flatus or fæculent accumulation, and the purge was to be repeated in three hours. How was the second object to be accomplished? The inhalation of chloroform, on the one hand, or the application of ice to the spine, on the other, appeared to be the only remedies adequate to the emergency, and as there were some objections to using chloroform, we determined to use the ice. This was accomplished effectually by her husband, who had two ox gulleets alternately filled with ice, and kept it continuously applied to the whole length of the spine for seven hours, when all her severer symptoms had disappeared.

The screaming and moans were at once mitigated by the ice, and in about half an hour ceased entirely. In two hours her feet became flexible. About 8 a.m. on the 23rd, the spasms had so far subsided that she could open her hands, but the numbness remained. She felt very sore in her muscles when turning in bed, especially in the forearms and legs, and in the back. Her tongue was cleaner, and the pulse had increased in volume, and had risen to 76. On the morning of the 24th the numbness entirely disappeared, and afterwards she had no return of cramp or spasms, but a little subacute bronchitis and hoarseness hung about her for ten or twelve days longer. She is now in her usual health.

In this case the patient herself ascribes the relief of her dreadful pain and cramps entirely to the use of the ice; and although it is difficult to distinguish between the mere *post hoc* and the *propter hoc*, yet I cannot but believe, if ever I saw a life saved by the therapeutical application, that this patient's life was saved by the use of the ice in this way to the spine; and the case strongly supports the theory propounded by Dr. Chapman, of Somerset-street.

If it be really a fact that, by the application of cold or heat to particular portions of the back, we can directly exalt or lessen the reflex activity of the grey matter of any given segment of the cord, or of the sympathetic ganglia which govern the blood-supply of distant parts, we shall have made a rare and philosophical hit in therapeutics, and, in the discriminating application of cold or heat to the nervous system, possess a remedy which may prove useful in almost all diseases. I had seen Dr. Chapman's brochure on the subject of this discovery, and also his paper in the Medical Times and Gazette, but thought the idea too pretty to be anything more than a plausible theory, until my own child being in great danger from an obstinate laryngismus, connected with dentition, I tried "the ice bag" to the cervico-dorsal portion of the spine, at the suggestion of Dr. Ramskill, and it has certainly done more to keep off the strangling attacks than any thing else.

Dr. Ramskill has not only adopted this treatment largely, but speaks of it to me with the greatest confidence in the treatment even of epilepsy, and in his practice it seems to be the means of doing great good, and in many cases of keeping the fits almost entirely in abeyance.

For the application of the ice to chronic cases there is a great practical difficulty in respect to obtaining perfectly waterproof bags of the proper shape. Dr. Ramskill was kind enough to give me one for my own child, and since then I have communicated with Dr. Chapman himself, who most politely forwarded me, at prime cost, some bags prepared under his direction, and these answer very well.

I am indebted to Dr. Griffith for much of this report.—Med. Times and Gazette, March 12, 1864, p. 280.

18.—ON SOME CASES OF LOCAL PARALYSIS.

By JAMES PAGET, Esq., F. R. S., Surgeon to St. Bartholomew's Hospital.

[In the first part of this paper, which is the report of a clinical lecture delivered at St. Bartholomew's Hospital, Mr. Paget relates some interesting cases of local paralysis. All these cases resulted from injury to the nerves supplying the paralysed part, not from injury to the nerve centres. Several are paralysis of one arm from injury to the brachial plexus, or the large cords in the arm, and these are most commonly met with. Similar injuries to the leg are less frequent.]

In these cases the loss of power and the defect and disorder of sensation were so much greater than any other consequences of the injury, that one cannot doubt a predominant injury of the nerves in the forearm. But its effects were complicated by the damage of the muscles and fibrous textures, and the consequent hardening and adhesion of their structures.

From all the cases together, it is evident that long-continued paralysis of both motion and sensation, attended with rapid wasting, and more or less of neuralgia, may ensue as a consequence of such injury of nerve-fibres as, probably, falls far short of rupture or destruction of their substance, and that these things, in an extreme degree, be due to an injury which, neither in its manner of occurrence nor in any other attendant character, would seem to have fallen with special severity on the nerve-trunks. It would seem as if the nerve-trunks might be rendered long incapable of their functions by such injury as, when occurring to the brain or spinal cord, we call concussion.

I am not acquainted with any case of the kind in which actual examination showed the state of the nerves. The exact pathology of the case is therefore unknown to me.

But of their treatment. It must be somewhat different in the cases of simple paralysis and in those that are complicated with the inflammatory hardening of textures, neuralgia, and other various symptoms.

For the former—for that of the man in the Hospital, for example,—the main design must be to maintain the nutrition of the limb, notwithstanding its inaction. And for this purpose there must be provided, in addition to whatever may be required for the maintenance of vigorous general health,—

1. Constant warmth of the limb; the whole body must be warmly clothed; the paralysed limb and its fellow especially so. No good or quick repair will take place in a cold limb.

2. Regular friction and shampooing, especially circular shampooing.

3. Localised galvanism, that every several paralysed muscle may be made to contract.

4. Constant voluntary efforts; constant endeavours to attain every lost movement; and when any such endeavour is effectual, frequent exercise of the recovered power.

5. Swedish gymnastics, *i. e.*, set exercises for each muscle in which power is not wholly lost.

6. Guards against distortion from unbalanced actions of muscles, especially contracted fingers or elbows.

With these things patiently, that is, year after year continued, much good may be achieved. In the case already mentioned as exactly like that of the young man in the Hospital, great good has been gained by a year's treatment; she can now move the elbow in flexion and extension, and draw the upper arm inwards, and slightly bend and extend the fingers. There is very distinct sensation in the whole arm and hand, and freedom from all pain; the natural temperature has been restored, and she has ordinary sensations of heat and cold. Galvanism seems to have done special good: the arm was observed to become weaker when it was omitted for a week.

But for the more complicated state, though the treatment must be essentially the same, it must be gentle, with less of galvanism, and less force of movement, and less of voluntary exercise, for these can rarely be borne as *they can be* in the cases of simple paralysis.

In both the cases which have been referred to of complicated injury to the structures above the wrist, much improvement has taken place. Two years after the accident, the first of these cases was reported to me as being much better; and of the second, the last note that I have (more than two years after the injury) is, that the hand was much better; the thumb and forefinger could be easily brought together, and all the fingers had become much more movable.

Two symptoms referred to in some of the preceding cases deserve particular notice; namely, what I have called the glossy state of the fingers, and the inequality of the pupils.

Glossy fingers appear to be a sign of peculiarly impaired nutrition and circulation due to injury of nerves. They are not observed in all cases of injured nerves, and I cannot tell what are the peculiar conditions of the cases in which they are found; but they are a very notable sign and are always associated, I think, with distressing and hardly manageable pain and disability. In well-marked cases, the fingers which are affected (for this appearance may be confined to one or two of them) are usually tapering, smooth, hairless, almost void of wrinkles, glossy, pink or ruddy, or blotched as if with permanent chilblains. They are commonly also very painful, especially on motion, and pain often extends from them up the arm. In most of the cases this condition of the fingers is attended with very distinct neuralgia, both in them and in the whole arm, and its relation to disturbance of the nervous condition of the part is, moreover, indicated by its occasional occurrence in cases where neuralgia continues after an attack of shingles affecting the arm. In two such cases I have seen this same condition of the fingers well marked, and only very slowly subsiding, and seeming unaffected by the ordinary treatment of neuralgia.

The inequality of the pupils is well marked in the man now in Darker Ward. The pupil on the injured side is always smaller than the other, but they both act equally well, and there is no defective sight. The same condition has existed ever since the injury in the young lady whose case I related next after his. Her right pupil, corresponding with the paralysed right arm, is always smaller than the left, and there is a very slight appearance, which is said to be increased when she is not in perfect health, as if the right eye were a very little smaller or less open than the left.

My attention was called to the existence of this inequality of the pupils, by Dr. Hughlings Jackson, who suggested also what seems not improbable, that it may be due to the relations of the brachial plexus to the cilio-spinal portion of the spinal cord.—*Medical Times and Gazette*, March 26, 1864, p. 332.

19.—ON THE CURE OF NEURALGIA BY ARSENICAL PREPARATIONS.

Dr. CAHEN, Physician to the Jewish Hospital founded in Paris by M. de Rothschild, has given arsenic with success to sixty-five people suffering from neuralgia:—

Facial neuralgia	35
Sciatic "	8
Intercostal "	4
Otic "	2
Dental "	2
Epigastric "	14
	65

In the two cases of dental neuralgia, the patients had had several teeth extracted in vain. One young lady amongst others had had eight teeth pulled out. M. Cahen gave her arsenic, and the cure was both successful and rapid.

From January 1859 to 1862, M. Cahen has given arsenious acid for different causes to 292 patients, and the dose of acid was per diem at a mini-

imum of 0·015 grains, and at a maximum of 0·6 grains. The minimum of the dose for treatment was 0·27 grains, and the maximum 6·075 grains. The arsenious acid was given sometimes in pills, sometimes in lotions, with a solution of one in a thousand, sometimes in baths, with 15·43 grains of arsenite of soda, for gouty and rheumatic affections.

M. Cahen has observed about neuralgia that sciatic neuralgia was that in which the effect of arsenic was less evident. However, this assertion should not prevent practitioners from using this medicine for sciatica, and they will find as an encouragement a good example of a cure which Dr. Barella communicated to the Society of Natural and Medical Sciences at Brussels.

Of the 292 patients treated at the Rothschild Hospital, M. Cahen noticed diarrhœa in 19 cases, but not so dangerous as to stop the arsenical treatment.—*Journal Méd. de Bruxelles*.—*Dublin Medical Press*, March 2, 1864, p. 222.

20.—THE EXTERNAL EMPLOYMENT OF ACONITINE IN NEURALGIC PAINS.

By Dr. A. B. GARROD, F. R. S., Physician to King's College Hospital.

Aconite is a most valuable external remedy; and for the purpose of alleviating neuralgic pains, I know of nothing equal to it. In the form of the Unguentum Aconitiæ, in which eight grains of the alkaloid are dissolved in a little spirit, and then thoroughly mixed with an ounce of prepared lard, it is a clean and elegant preparation.—*Medical Times and Gazette*, Feb. 6, 1864, p. 146.

[In our own practice, we have lately found some of the concentrated tinctures, prepared by some of the American chemists, very valuable additions to the medicines usually employed by British practitioners. In neuralgic affections, we have found the most remarkable efficacy from the concentrated tincture of gelseminum (the yellow jessamine), in doses of from five to ten drops. It seems to possess properties somewhat similar to aconite, but without the depressing effects of that drug. We would strongly recommend our fellow practitioners to try this medicine in their neuralgic cases.—EDS.]

DISEASES OF THE ORGANS OF CIRCULATION.

21.—ON DIGITALIS IN CARDIAC DISEASE.

(From the "Hospital Notes" of the Medical Times and Gazette.)

[In our last volume, several articles were given showing that Digitalis is a cardiac tonic.]

Dr. SUTTON, in order to test the value of this conclusion, has prescribed tincture of digitalis in several forms of heart disease occurring amongst the out-patients of the Metropolitan Free Hospital. The following are the results of his observations:

1. In cases of mitral regurgitation, with dilated hypertrophy and enfeebled condition of the heart, digitalis gives great relief, as in the following case:—A woman, aged thirty eight, was so weak that she was led into the out-patient's room. Her feet and ankles were œdematous. Her pulse was very feeble and quick, but regular, and the heart's visible impulse was diffused and indistinct, and the apex was felt over the seventh rib. The first sound was inaudible at the base, and the second was of a very high pitch. There was a faint systolic bruit at the apex. Her complaint was, in her own words, "I feel so very faint." Fifteen drops of the tincture of digitalis, with the like quantity of tincture of the sesquichloride of iron, was given in an ounce of water three times a-day. Four days later she walked into the room without help, and said she felt much better. The bruit was more audible. She continued to do well.

2. In a case of chronic pericarditis, with very great effusion into the bag of the pericardium. A man, aged thirty, complained of shortness of breath and great faintness. He was unable to move in bed without feeling very faint; his lower extremities were œdematous; his pulse was very feeble and quick. The only sound of the heart that could be heard was the very faint, distant-like click of the second sound at the base. R. Tinct. digitalis, ℥xv.; eth. chlor. ℥xv. tinct. ferri mur., ℥x.; ter die s. Five days afterwards he expressed himself relieved. Pulse regular and stronger; no perceptible difference in the extent of dulness on percussion. The urine was not increased. The digitalis was continued for six weeks. He recovered so far that he could walk about the house, but he had a relapse, and died four months later. A post-mortem confirmed the diagnosis.

3. In aortic regurgitant disease it requires to be given with great caution. In one case, while taking digitalis, the patient's pulse became irregular, increased in frequency, and he died, with well-marked symptoms of intra-cardiac blood concretion.

4. In heart-disease, with dropsy, it exercises no well-marked influence over the secretion of the urine.

5. In one case of aortic obstruction, with simple hypertrophy, and a strong, heaving impulse, digitalis was given in fifteen drop doses three times a-day for fourteen days, when the patient remarked, "I feel the action of my heart much more troublesome when I take the mixture."

6. That in a case of aortic regurgitant disease, complicated with angina pectoris, the patient having an atheromatous physiognomy, digitalis was given for fourteen days. No relief to the patient; pulse irregular.

7. Digitalis is very beneficial in cases of the following class:—Men of middle age, of the sanguine temperament, and of the neuro-vascular diathesis, as described by Professor Laycock; complaining of dyspœa on exertion; very weak; appetite normal; pulse rather quick, easily excited, and soft; heart's impulse seen in the epigastrium, feeble to the hand; first sound inaudible at the base; second sound, high pitch; at the apex, the first sound faintly heard. In one such case there was albuminuria; in two arcus senilis. All these cases improved quickly while taking tincture of digitalis and iron. That it was not the effects of the iron was proved by the fact that they all had improved after taking the mixture three or four days.

8. It may be given cautiously for six or eight weeks, in fifteen-drop doses in cases of enfeebled heart with mitral disease, without producing any irregularity of the pulse, but the reverse in aortic disease.

It will be seen from the above conclusions, that Dr. Sutton confirms Dr. Handfield Jones' remarks, that the most suitable cases for the administration of digitalis are those of enfeebled heart; that digitalis "seems to be injurious in sthenic, and beneficial in asthenic cases." The same with respect to Dr. Corrigan's statement (to which Dr. Leared called the attention of the Profession), that in cases of aortic disease the effects of digitalis are injurious.

We will now give the experience of another Hospital Physician, Dr. WILKS. Going round with him a few days ago, we saw at least a dozen cases of heart disease which had their origin in a former attack of rheumatism. When there was dropsy, the ordinary treatment was adopted; and when the heart was weak and irritable, iron and digitalis appeared to be Dr. Wilks' favorite combination. He said that, as no medicine could alter the changes which had occurred in the valves, the only remedies which can be of use are those which tend to preserve the power of the muscular tissue, and, therefore, the great benefit of iron in weak heart. As regarded digitalis, he had always acted on the principle, that this remedy is efficacious in proportion to the weakness and irritability of the organ, and hence the reason why some had called it a tonic. Owing, however, to the prostration produced by its long continuance, a very prevalent opinion existed that it was a remedy not available in a depressed state of the system; whereas the opposite is the fact when the heart is concerned, a reduced frequency of the pulse being a more correct test of the influence of the medicine on the circulation than the force of the arterial action. Dr. Wilks mentioned an instance where a patient was literally re-

stored to life by its use. The case was that of a woman, who, having long suffered from disease of the heart, had a severe flooding after labour. She was apparently in *articulo mortis*; her limbs were cold; her body in a state of deathly clammy sweat; the face livid; no pulse to be felt at the wrist, and a mere fluttering to be heard when the ear was placed over the region of the heart. Brandy and ether had been given without any good effect, and, as dissolution was every moment expected, it was determined to try digitalis. Half-drachm doses of the tincture were given every hour, and after four doses a reaction had taken place, and after seven doses complete recovery had occurred. The heart, though irregular, was beating with a defined action, and the pulse could again be felt. From this time recovery took place.

It must be remembered, however, that, as Dr. Dickenson has shown, digitalis in large doses checks uterine hemorrhage; but even if the improvement in Dr. Wilks' case were due to this, the principle is probably the same, that digitalis is a tonic, not to the heart alone, but to the (organic) muscular system generally. In Dr. Fuller's recent work on "Diseases of the Chest" will be found some interesting remarks on the action of digitalis. He writes:—"It is a most valuable remedy when given in the treatment of dilatation, and is dangerous only in hypertrophy. Whenever the pulse is feeble and irregular, and more especially when, from any cause, its feebleness and irritability are temporarily increased, digitalis is, of all known remedies, the most useful."

The above views of Dr. Handfield Jones, Dr. Wilks, Dr. Sutton, and Dr. Fuller are not yet generally received by the Profession. The exact reverse is generally held—that digitalis is valuable in hypertrophy and dangerous in dilatation. One of our most distinguished authorities on diseases of the heart, Dr. Walsh, writes:—"If the power of the ventricles be seriously impaired, digitalis cannot be given without excessive risk, and had better be altogether avoided."

We require an extensive series of cases with careful observations as to the valves damaged, and as to the result, as regards regurgitation and obstruction (as aortic obstruction, for instance, it is of infinitely less consequence than aortic regurgitation), but, more than all, as to the condition of the heart itself as regards hypertrophy, dilatation, and muscular power.—*Medical Times and Gazette*, Jan. 16, 1864, p. 60.

DISEASES OF THE ORGANS OF RESPIRATION.

22.—ON THE TREATMENT OF ASTHMA BY THE IODIDE OF POTASSIUM.

By Dr. HYDE SALTER, F. R. S., Assistant-Physician to the Charing-Cross Hospital.

[Iodide of potassium has for many years been esteemed a remedy of value in the treatment of asthma. Dr. Salter does not, however, consider that it deserves quite so high a place as has been given it by some of its advocates.]

Sometimes, however, I have seen most striking results attend its use, as the following cases will show:—

E. H., a lady aged thirty, who had suffered from asthma for seven years past, came under my care in September, 1863. Her paroxysms were of two kinds—very severe ones, lasting several days, at long intervals; and slight ones, occurring every night, and disturbing her sleep for an hour or two. From these last she had been suffering every night for some weeks when I saw her. Omitting many of the details of her case, I may mention the following as the most relevant:—Diet appears to exercise no influence on her attacks. Damp places agree with her the worst, and she is never well for the first day or two on going to a new place. She is liable to what she calls attacks of renal congestion, in which the urine is very thick and high coloured, and *she thinks* that this state of the urine is associated with and produces the

asthma. Her father is a martyr to rheumatic gout, quite crippled by it, and has been for years; an uncle died of gout quite young. She has tried an infinity of medicines, and, as far as their effects go, they may be divided into two classes: those which give her slight relief, and those which give her no relief at all. Among the former are—inhaling chloroform, smoking stramonium, smoking various forms of cigarettes, burning nitre paper and inhaling the fumes, ipecacuanha as an emetic, mustard plasters, blisters, chloric ether in thirty-minim doses. Among the latter are—strychnine and nux vomica, valerian, lobelia, hot strong coffee, sulphuric ether, Indian hemp. The benefit derived from inhaling chloroform, fumes of nitre paper, from ipecacuanha as an emetic, and from chloric ether, is great at the time, for the smaller attacks, but in each case evanescent.

When I first saw this lady, she was staying at Chertsey, and having the minor attacks every night. I prescribed for her extract of stramonium, and one or two remedies which she had not tried. She called on me again about the 5th of October, and informed me that what I had prescribed for her did not seem to have affected her in any way; she still had the slight attacks every night. She was going away in three days to a place in Surrey, where she had always been bad and had had some of her most violent attacks; indeed she had never been there without being violently asthmatic the whole time, and she looked forward to her visit with great apprehension. The house to which she was going was built, as she described it, almost in a well—in a place surrounded with water on all sides, and which was rather *wet* than *damp*. I ordered her five grains of iodide of potassium and twenty minims of aromatic spirit of ammonia, in a wineglass of water, three times a day. I saw her husband on the 22nd of October, seventeen days afterwards, and his report was as follows:—She had begun the iodide of potassium a day or two after I had ordered it, and had not had an attack of any kind, severe or light, since. The minor attacks had entirely ceased, and she slept uninterrupted through the night, a thing she had not done for two or three months; she had gone to the dreaded place, and no attack had occurred—the first time in her life that that had ever happened. Her husband did not know when he had seen her so well. She was daily gaining flesh and strength. The lady herself, with great simplicity, gave the strongest possible testimony to the effect of the remedy by saying, in her written account of herself, that “she had been so well since she had been taking it that she had had no opportunity of trying what its effect would be upon her asthma.” To which of course, I replied, that I did not care how long the same result should keep her ignorant of the virtues of the remedy.

It is now nearly a month since she has been taking the iodide, and she still remains perfectly free from her former symptoms. Occurring, as the change did, suddenly, and coincidently with the taking of the medicine, and under the most unfavourable circumstances—that is, when she was going to a place where she had never before escaped severe asthma as long as she was in it, I cannot but attribute the result to the remedy. What will be the effect of leaving it off, and whether on future occasions its results will be equally striking, the future only will show.*

The following case, in which the iodide appeared to be equally beneficial, was under my care during the past autumn:—

T. H., a tall, pallid, spare man, aged sixty-two, had had asthma for six years, and for the last three the attacks had been frequent and very severe. He generally had an attack once a week, and if he escaped a fortnight thought himself very lucky. When I first saw him he had had for some time slight attacks every morning about four o'clock that woke him from sleep, and compelled him to sit up and cough and wheeze for an hour.

* About a month after writing the above, I heard that this lady had had a severe attack of acute bronchitis from exposure to cold. She was taking the iodide of potassium at the time. The bronchitis was very severe, so that for a day or two her life was in danger; but she had *no asthma*, although on all former occasions on which she had had bronchitis it had induced asthma. On the abatement of the bronchitis, I advised the resumption of the iodide of potassium; and at the time that I last heard from her there had been no reappearance of the asthma, and this was fully two months from the time it was first given.

There was no history of gout in the case; but there was clear evidence of occasional attacks of bronchitis. With regard to treatment, there was the old story: an infinity of remedies had been tried, and, with a single exception, nothing had done him any permanent good. That exception was chloroform, which never failed to give immediate relief. On waking each morning with his usual attack, from half a drachm to a drachm was inhaled. The difficulty of breathing at once subsided, the patient went off into a tranquil sleep, and there was an end of it; whereas, if the chloroform was not given, the dyspnoea would go on increasing, become very tedious, and very likely culminate in a regular attack. But with this single exception, all remedies that had been tried appeared inert. Several things that had not been employed I made a trial of, but with an equally unfavourable result till I tried iodide of potassium. The effect of this was very soon shown. No severe attack occurred after it was commenced, and in a few days the regular morning attacks ceased also. The patient now slept all night without disturbance, and there was no longer any necessity for resorting to the chloroform. This went on for six weeks; the iodide of potassium was then left off. In a few days the asthma began to show itself again, and in a week or two was as bad as ever. The iodide was then resumed, with the same beneficial results as before. I have not heard of this patient now for more than a month; and this very circumstance inclines me to hope that this remedy still keeps his enemy at bay.

It should always be borne in mind, in giving iodide of potassium for asthma, that it is often some time before it begins to take effect. I have a patient at the present time under my care who has been taking it for three weeks past in eight grain doses three times a-day, but it is only during the last week that any decided improvement has taken place in him. He has lost his spasms; the expectoration has very much decreased; and he has ceased to experience an abiding "thickness" and tightness of breathing that he had in the intervals of the attacks, and which never left him. His nurse tells me that whereas before, for months past, whenever he was asleep his breathing was audible and laboured, and accompanied with a slight wheezing, it is now inaudible and tranquil. Yet for the first fortnight this patient derived no apparent benefit whatever from the drug, and was anxious to give it up; now, however, he is convinced of the good it is doing him, and is anxious to continue it. It may be asked, why do I think that the improvement is really to be assigned to a remedy that seems to remain so long inoperative? Why may not the apparent benefit be a coincidence, and the drug be really doing him no good whatever? I think the improvement is the work of the iodide for two reasons. In the first place, from the fixedness of the patient's previous condition for a great length of time, no medicines or any other agencies that were brought to bear upon him making any difference in him. In the second place, from this tardiness of the action of the iodide of potassium corresponding with its action in other affections. How long is it, for instance, before it makes any appreciable impression upon a goitre, however complete and satisfactory its results may ultimately be!

I used to think that the benefit derived from iodide of potassium in asthma was entirely due to its beneficial influence in chronic bronchitis, and therefore that the only cases of asthma in which it did any good were cases in which chronic bronchitis and asthma coexisted, and the one was the exciting cause of the other. I am compelled, however, now to abandon that view; for in some of the cases in which its efficacy has been the most striking there has not been a trace of bronchitis.

Another theory that I once held I am also obliged to abandon—namely, that it was of advantage only in those cases in which the asthma was due to a gouty or rheumatic-gouty condition; and that it was by relieving this condition that it relieved the consequent asthma. In two of the cases that I have related this view would be borne out, for there was evidence of gout in both of them; but in the third there was not a trace. Moreover, I have seen cases of true gouty asthma in which iodide of potassium has been of no service.

Of its ultimate and exact *modus operandi* I can neither offer any explanation nor form any reasonable opinion. I am not, however, the less satisfied of its occasional great value, and of the propriety of its use in any case in which it has not been tried.—*Lancet*, Jan. 23, 1864, p. 92.

23.—ON THE USE OF TINCTURE OF LARCH IN CHRONIC BRONCHIAL AFFECTIONS.

By Dr. HADLAM GREENHOW, Assistant-Physician to the Middlesex Hospital.

[In cases of chronic bronchitis in which copious expectoration indeed continues, but the acute symptoms have subsided, the object of the Physician must be rather to check than to encourage the continuance of the expectoration.]

In patients who have suffered from repeated attacks of bronchitis, this stage of the disease often persists for a lengthened period, and may even ultimately become the habitual condition of the patient. A somewhat analogous condition of the bronchial membrane is frequently met with in cases in which there has been no previous attack of acute or sub-acute bronchitis, but in which the ailment, having begun with a slight increase of bronchial secretion, has gradually merged into a chronic cough attended by expectoration. This latter form of bronchial affection is especially apt to occur in patients of gouty constitution, and also in persons exposed to breathe either the over-dried atmosphere of artificially-warmed and ill-ventilated apartments, or air charged with mechanical, gaseous, or other irritants. In whichever of these forms the chronic flux from the bronchial membrane may present itself, its tendency, even in slight cases, is to impair the general health and vigour of the patient, and to render him more especially liable to suffer from catarrhal attacks, each repetition of which further aggravates, and tends to render permanent the bronchial affection. Various remedies have long been in use for the treatment of this class of cases, especially balsamic medicines—such as balsam of copaiba, ammoniacum, and compound tincture of benzoin. Of these, balsam of copaiba is undoubtedly the most efficacious; but its nauseous taste and smell, for the most part, forbid its employment. Moreover, in many of such cases, there is a feeble condition of the digestive powers in which these balsamic medicines are apt to disagree with the stomach, and a want of general tone and vigour, requiring the administration of tonics. I have now, during some five or six years, been using, with much success, the tincture of larch in the treatment of these forms of bronchial affection. The tincture is made from the inner bark of the larch tree, and its taste is much less unpleasant than that of any of the above-named remedies. I have rarely found it disorder the stomach, and it is capable of being given in combination with tonics, or any other remedies the case may require. I most frequently prescribe it, in hospital practice, in doses of from twenty to thirty minims, in a mixture consisting of tincture of gentian, nitro-muriatic acid, and water, with or without ipecacuanha wine, and either tincture of hyoscyamus or compound tincture of camphor, according to the more or less frequency and severity of the cough. When desirable, the mixture may be rendered more agreeable to the taste by the substitution of syrup of orange peel for tincture of gentian. Of the value of the tincture of larch as a remedy in the large class of cases above described, I entertain no doubt, having tested its efficacy very carefully, and having repeatedly found that patients improved greatly under its use when other medicines had failed. I have in a few cases tried an extract of larch bark, but have found it less decidedly useful than the tincture, which is also the most convenient form for administration. It will be inferred from the tenor of the foregoing observations, that tincture of larch will be found useful only in chronic forms of bronchial disease, attended by considerable expectoration. Its employment is contraindicated in acute bronchitis, or during the intercurrent catarrhal attacks, to which patients suffering from chronic bronchitis of long standing are so liable. Its effect as a remedy is gradually to lessen

the amount of expectoration, and with it the cough and dyspnoea, and at the same time to render patients much less subject to catarrhal attacks at particular seasons or changes of weather.—*Medical Times and Gazette*, Feb. 20, 1864, p. 200.

24.—BROMIDE OF AMMONIUM IN HOOPING COUGH.

By Dr. GEORGE HARLEY, Physician to University College Hospital.

[Bromide of ammonium has been tried by Dr. Harley for some time in all cases of hooping cough which have come under his care. The two following have occurred recently. We do not suppose that the same success will invariably be found to ensue from its use.]

Oct. 6th. Louisa M., aged nine, is a moderately well-developed child; she is rather pale, and has never been very strong or healthy; has a bad appetite. For the last two months she has been suffering from hooping cough, and hoops two or three times during the day, and once or twice in the night. Ordered nine grains of bromide of ammonium to be taken in half an ounce of water three times a day.

13th. Much better; the mother says the girl is "much improved since taking the medicine, and is not like the same child." She lost the hoop after taking five doses of the bromide of ammonium.

John M., aged six, also came to the hospital on the 6th of October, having had hooping cough for two months. He hoops three or four times in the day, and almost every half hour in the night. The cough is not so bad now as it was a fortnight ago. This patient was also ordered to take the bromide of ammonium in six-grain doses three times a day.

13th. The boy lost the hoop after taking the medicine one day, or after four doses; has now only slight bronchitic cough.

20th. Both the above patients visited the hospital to-day, and have now only slight cough; they were ordered some tonic mixture, with cod-liver oil, to improve their general health.

27th. Discharged cured.

[In a letter to the Editor of the *Lancet*, Dr. Harley remarks that, as a rule, a grain should be given as a dose for every year of the patient's age. He continues:]

To some strongly developed children I have given as much as twice the above-named dose. Thus at the present time I have under treatment a child aged three years who is taking six grains, and another aged four years who is taking eight grains of the bromide three times a day. If your correspondent's child is well developed, he may begin by administering one grain three times a day.

All cases of hooping cough are unfortunately not equally benefited by the remedy; some pertinaciously resist its action, while others as readily yield to it. The report of some late cases—for the notes of which I am indebted to Mr. Joseph Thompson, one of the pupils at the hospital presents a striking illustration of the truth of the latter observation; while on a future occasion I purpose furnishing some cases illustrative of the correctness of the former. The difference in the result of these two sets of cases is, I believe, not due to any variation in the effect of the remedy, but to the peculiarity of the cases themselves. This is, however, a point for future discussion.—*Lancet*, Jan. 16, 1864, pp. 66, 82.

DISEASES OF THE ORGANS OF DIGESTION.

25.—ON THE TREATMENT OF DIPHTHERIA.

By Dr. WILLIAM GIBSON, Campbellton.

[This paper is founded upon observations made upon fifty-one cases of diphtheria which came under the author's treatment during a period of two years

and a half. At the commencement of a case he generally gave a compound jalap powder, with a grain or two of calomel, but any other purgative acts as well. This has the effect of lowering the febrile symptoms and lightening the patient. The diet should be varied, according to the desires of the patient and the circumstances of the case; but, as a rule, it should be something very light and digestible. If there are signs of asthenia present, beef-tea and wine should be given, but never too freely.]

Salines which act on the skin have been recommended at the commencement of the disease, or so long as the febrile symptoms last; but in my practice I never saw them have any decidedly good effect, and their administration was the means of turning away the patient from articles of diet more essential.

The tincture of the perchloride of iron I tried in some cases, and that most perseveringly, but without any apparent advantage; and the giving of it was attended with this effect, that it was soon nauseated by the patients, and this made them nauseate other things more beneficial.

In two cases in the asthenic form, where the urine became albuminous, and when the patients were at the weakest, the carbonate of ammonia, in several grain doses every few hours, was apparently of great benefit.

The chlorate of potash was of no service in my hands; its internal use had no effect over the exudation.

In the great majority of cases, it appears to me almost certain that the continuance of the general symptoms, or the disease, depended very much on the extension of the exudation; that if the latter ceased to spread, the former abated. This took place even though its extension was stopped by treatment; hence the great importance of the local application of those medicines possessing such power; for not only, to all appearance, was the local affection controlled by them, but the general disease as well. The remedies of this nature that I tried, were a solution of nitrate of silver, about a scruple to the ounce of water: the lunar caustic itself; and hydrochloric acid with about one-half or one-third water. The latter I came to regard with the greatest favour, as being the most effectual. I found it better in using them to limit their application to the exudation, and avoid as much as possible the parts simply inflamed—taking care, however, to see that they were applied freely to the whole extent of it. If after the first application it ceased to spread, the use of the remedy was discontinued; but if it still extended, the remedy was repeated; in this I was not limited by intervals of so many hours, but according as it spread. Some cases were completely controlled by one application, some by two or three, while in others it required to be made repeatedly.

I have seen the occasional use of the same remedies have a good effect when the exudation was declining, and where it had been extensive, and sanio-purulent matter flowing freely from it, by hastening its disappearance, and lessening the discharge.

Gargles I never found of much service. The great majority of the patients were unable to use them, and even those who could, had often a decided aversion to them. After trying them in the first few suitable cases, I abandoned their use, and that without any bad result. I found dusting the throat with powdered alum or tannic acid much easier, and apparently more serviceable; the benefit derived from it was often considerable.

Warm poultices, or stupes by wringing a sponge or piece of flannel cloth out of hot water, and applied round the neck with a dry cloth above, were frequently useful, especially if the glands of the neck were much swollen or pained, or if deglutition was difficult. Their application in such circumstances was often very grateful, and they had the effect of not only affording relief, but of giving one the impression that they helped in stopping the exudation.

Inhaling the steam of hot water, or this medicated with vinegar or strong acetic acid (I found the latter preferred by some patients), when the inflammation or pain in the throat was severe, was also sometimes agreeable, and in several instances gave much relief.

When the exudation had entered the windpipe, some of the above means, such as steaming the throat, warm poultices and stupes, might still be found useful in affording some ease, though of little service in warding off a fatal termination. In the only case of this kind which recovered, I found these very useful. Emetics were also of service in this case, as well as in others which proved fatal, in affording temporary relief. The emetic which I preferred was the sulphate of copper. In some cases the application of mustard poultices to the neck and upper part of the chest, or to the back of the neck and between the shoulders, did good in relieving the attacks of dyspnoea. In one case I tried tracheotomy; but though giving great ease for a few hours, and evidently prolonging life for a brief space, yet the difficulty in breathing soon returned, and the child died in about twelve hours after the operation. In two others it was proposed to have this operation performed, but this was overruled. In another case where liberty was given to perform the operation, but where I was accidentally prevented from doing it, on a post-mortem examination of this patient (the only one I was allowed to make), the exudation was found not to have passed the larynx, and the trachea quite healthy, showing how favourable the case was for it.

In treating the anasarca and paralysis occasionally following this disease, in the former I relied on the tincture muriate of iron, time, diet, and nursing. It did not appear to me proper to use either purgatives or diuretics to any extent, so weak were the patients. In all the recovery was tedious, but complete. In the paralysis the only means used was the tonic regimen.—*Glasgow Medical Journal*, Jan. 1864, p. 405.

26.—ON SPURIOUS DIPHTHERIA; ITS NATURE AND TREATMENT.

By G. STEVENSON SMITH, Esq., Letham, Fifa.

Much confusion is often caused, and many hindrances to the advancement of medicine are thrown in the way, by a loose and indiscriminate application of names; it ought, therefore, to be the aim of every one who has the interests of his profession truly at heart, to attain to clear and distinct ideas as to the nature of disease, so that he may at all times think, and judge, and act, with precision. And one way in which he may assist in clearing up matters is, by studying diseases which are allied to each other, and by carefully observing and pointing out the distinguishing characteristics of each.

My object at present is to direct the attention of the profession to an affection which, in many respects, resembles diphtheria, and may be mistaken for it, but which, it will be found, differs essentially from that disease, both in its nature and its results.

During the prevalence of an epidemic, it is usually noticed that there is a strong tendency to a particular form of disease. When cholera prevails, for example, there are always many cases of severe diarrhoea and vomiting, which get well, and the true characteristics of the epidemic affection never become fully developed; in these there is a tendency to cholera, but it would be a misapplication of terms to call them real cholera cases, and so it is. I believe, in epidemics of diphtheria. Throat affections have a tendency to take on this form of disease, and many, many cases which are called diphtheria, and are even treated as diphtheria, are, I am convinced, merely examples of the affection I am about to describe.

How otherwise can we account for the apparent success of one practitioner in his treatment, and the total failure of another?

We hear of one man curing his diphtheria cases with one remedy, while another is equally successful with something totally different; but only let the boasted remedies be applied to a really serious case of true diphtheria, the diphtheria which Bretonneau studied so thoroughly, and has so graphically

described, and I am convinced they will turn out to be utterly impotent and useless.

It is of importance then to distinguish between the two affections, and I shall now endeavor to sketch the characteristics of spurious diphtheria.

In the course of a recent outbreak of diphtheria, my attention was drawn to a certain class of cases which, while they presented some of the symptoms of that affection, never assumed such a serious nature, or called for such a vigorous plan of treatment, as did those which had previously come under my care.

In the class of cases to which I allude, the patient usually complains first of a curious feeling in the throat, as if a pin were pricking it; there is languor, with pains in the back and legs; and sometimes considerable tenderness on pressure on the outside of the throat, just under the angle of the jaw.

On looking at the throat, the tonsils and uvula are more or less tumefied, according to the severity or mildness of the case, and of an angry red colour, while on their surface small, irregularly shaped, yellowish white spots will be observed.

The spots are evidently of an aphthous nature; there may be only one or two on the tonsil or on the uvula, or they may be so numerous as to give to the soft palate an appearance as if some one had shaken a box of white pepper over it.

However great their number may be, I have observed that their edges do not coalesce, each spot is isolated. They never look excavated, but seem as if they just floated on the mucus which moistens the throat.

The appearance of the tongue usually indicates derangement of the digestive system, and the pulse is smaller and more frequent than in health.

The treatment of spurious diphtheria is exceedingly simple—a mild aperient, the tincture of the muriate of iron, in doses of ten or fifteen drops thrice a-day, with a simple gargle of chlorine water, will certainly and speedily cure the throat affection. There may be a good deal of prostration and muscular debility after an attack of this disease, but a liberal diet, and the use of stimulants, if necessary, will soon restore the patient to health.

Aphorisms.—Spurious diphtheria, so far as my observation has extended, never proves fatal. Though accompanied with debility, I have never seen it followed by paralysis or albuminuria; the tonsils sometimes suppurate after an attack. A patient who has suffered from this affection may subsequently be attacked with true diphtheria.

In true diphtheria gargles are of very little use till the patient begins to recover, but in the disease under consideration their use is always followed by the greatest benefit from the very first. In spurious diphtheria the use of caustic is not required. I do not know how to account for it, but this affection seems to be most prevalent amongst young females.—*Edinburgh Medical Journal*, November, 1863, p. 452.

DISEASES OF THE URINARY ORGANS.

27.—SIMPLE METHOD OF ESTIMATING THE ACIDITY OR ALKALINITY OF URINE.

By M. DONOVAN, Esq., M. R. I. A., Honorary Member of the Philadelphia College of Pharmacy.

During the existence of the uric acid diathesis the exhibition of alkaline substances is a part of the treatment generally resorted to. The *liquor potassæ* is much used, but is liable to the objection, that on account of its powerful agency on the coats of the stomach, an efficient dose can scarcely be ventured on. The bicarbonate of potash is therefore preferable. This form of the alkali will react upon any acid present in the system, no matter whether it be free uric, phosphoric, sulphuric, muriatic, or lactic acid. The agency of any one of the four last is to be feared when there is an abnormal

quantity of urate of ammonia present, as the latter will be decomposed, and the uric acid thus eliminated may aggregate into the form of gravel or calculus. Not only will the acids present in the stomach produce this effect, but even the most slightly acidulated beverages or esculents; whence it is that during the prevalence of the uric acid diathesis all acid wines, acid drinks, acids of all kinds, and acidulous fruits are to be avoided. I have known the urine of a person to be so highly charged with the urate of ammonia that a few spoonfuls of hard porter, or the eating of an apple, would next day cause the excretion of two or three small crystals of uric acid. No wonder that indulgence in acidulous or acescent articles of food should develop uric calculus during the prevalence of the uric acid diathesis. In the case of the person above alluded to, it was ascertained that if a portion of bicarbonate of potash were swallowed immediately after or before the ingestion of a moderate quantity of acidulous wine, porter, or fruit, no crystalline substance was passed with the urine.

Although alkalies enter the circulation and neutralize acidity wherever generated in the body, it is well known that, if taken in greater quantity than necessary for attaining the point of neutrality, they will produce as bad effects as any acid would have done by precipitating the earthy salts of the urine, and thus giving origin to a calculus, although of a different kind.

Sir Benjamin Brodie observes that, as too little alkali will do proportionately little service, and too much may thus do positive injury, watchfulness is indispensable, while alkalies are exhibited, during the prevalence of the uric acid diathesis. He recommends that the urine be frequently tested by litmus and turmeric papers; the alkali, he warns, is never to be urged so far as to neutralize the acid entirely. The chief defect in this mode of ascertaining the state of the urine is that the test papers do not afford information about the daily increase or diminution of acidity or alkalinity. The intensity or depth of the change of hue will scarcely be recognizable until the critical disappearance of all acidity or alkalinity suddenly occur, and yet it is from precise information as to the approach of this period that the practitioner is to learn whether his treatment be doing injury or service.

To afford the requisite information, I suggest the following method, the application of which requires but little skill, and is so simple that it may be entrusted to the management of the patient. The apparatus necessary consists of two equal cylindrical test glasses, each about six inches long and nine-tenths of an inch internal diameter. One of these is to be graduated in the following manner:—Pour into it two ounces measure of water, and mark the height at which the water stands with a sharp file. Divide the space between the bottom and the marked line into forty equal parts, which we may call degrees. They are to be engraved, and every tenth degree numbered, the lowest being 1, and the highest 40. The other test glass need not be graduated.

A normal tincture of litmus should be kept in readiness, made by infusing 120 grains of fine powder of best litmus in a mixture of an ounce and a half of water with half an ounce of rectified spirit for a day or two with frequent agitation, and then pouring off the clear tincture.

A normal alkaline solution is formed by dissolving 160 grains of air-dried bicarbonate of potash in eight ounces measure of *distilled* water. This solution will hold dissolved one grain in the quantity which each degree or division of the test glass is capable of containing. Any other ratio of alkali to water would answer, but not so conveniently for the test glass and its graduation here proposed.

Process.—Mix about half a drachm of the tincture of litmus with about an ounce and a half of distilled water. Pour this purple-tinged water into the graduated test glass until it rise exactly to the tenth degree; and into the same glass pour the urine to be tried, until the total liquid rise to the twentieth degree. The liquor will now perhaps be brilliantly reddened. Pour the whole into the ungraduated glass; add to it twelve or fifteen grains of the same crystals of bicarbonate of potash, and let them dissolve. The red colour will, by this excess of alkali, be restored to its original purple hue.

Into the graduated glass pour the same quantity of the remaining tinged water, and the same quantity of urine as before. Now add, by small quantities, as much of the normal alkaline solution (drop by drop as the colour approaches that of the liquid in the ungraduated glass) until the tint in both glasses be exactly the same, shaking the mixture well after each addition. The column of liquor in the ungraduated glass must be kept constantly as high as that in the graduated one by additions of distilled water, in order to ensure similarity of hue by similarity of dilution. The two glasses must then be placed, very near each other, in such a situation that, when the slight effervescence (if there be any) is over, they may be viewed by transmitted light from a bright sky. The number of divisions or degrees to which the liquor in the graduated glass has been increased, by the normal alkaline solution added, will indicate the number of grains of bicarbonate of potash that are the equivalent of the acid or acids contained in the quantity of urine tested, one grain for each degree; and by daily trials made in this manner certain information will be gained of the increase or diminution of acidity, and of the propriety of increasing or diminishing the dose of the alkaline remedies prescribed. By the same means a patient at a distance can communicate to his physician his exact situation, by informing him how many grains to the ounce his instrument indicates, twenty divisions being equal to an ounce.

Commercial bicarbonate of potash in *crystals* is sufficiently pure for the purpose. When air-dried it is unalterable in the air, and will always afford a solution of the same alkaline strength from the same proportions.

It is obvious that this apparatus may be used for testing alkalinity as well as acidity, by an obvious change of means. Thus: make distilled water purple-blue as before; pour it into the marked tube up to the tenth degree; then pour in the alkaline urine until it reach the twentieth degree. Transfer the whole into the ungraduated tube, and add a slight excess of the normal dilute acetic acid hereafter described; the colour changes to red. Repeat the same process with coloured water up to the tenth degree, and the alkaline urine to the twentieth; add the normal acetic acid until the red tint of both liquors be the same, keeping up the level in the ungraduated tube, with distilled water, to the same height as that of the liquid in the graduated tube. The quantity of dilute acetic acid added is the index of alkalinity.

The exact degree of acidity of the normal acetic acid is of little moment, provided it be always the same for the same set of experiments. The more dilute it is, the more sensitive it will be as an index of alkalinity. In general the acidity should not exceed that which is barely discoverable by the taste.—*Dublin Medical Press, March 16, 1864, p. 268.*

28.—ON THE URINE.

By DR. GEORGE HARLEY, Professor in University College, and Assistant-Physician to University College Hospital.

[Urine is nothing more nor less than a collection of the liquid and solid effete products of the frame, and its composition fluctuates in exact proportion as the processes of life fluctuate. Dr. Harley considers that the study of the urine has not done nearly as much as it might have done, nor as it ought to have done, owing to its votaries having always been too eager to profit by its pathology ere they had mastered the first rudiments of its physiology. Dr. Harley thus divides the urines of mammalia into the natural division of—the solid and the liquid urines. The urine is solid in all animals devoid of a urinary bladder, and in which the ureters open into the rectum. But this solid urine which occurs in most reptiles, in birds, and in insects, differs only from liquid urine in the absence of water.]

The liquid urines are found throughout the whole class *Mammalia*, and present three such well-marked varieties, both as regards physical appearance and chemical composition, that it may be said they naturally divide

themselves, according to the species of animal, into the three separate groups of carnivorous, herbivorous, and omnivorous urines.

The urine of the first class (carnivora) is characterised as being a clear, transparent, light-coloured liquid, possessing an acid reaction, and rarely depositing anything on cooling.

The urine of the second class (herbivora), on the other hand, is recognised as being a dark coloured liquid, with a strongly alkaline reaction, and depositing a copious sediment within twenty-four hours after being passed.

The urine of the third class (omnivora) lies, as it were, between the two. It is clear, slightly acid, somewhat darker in colour than that of the carnivora, but considerably paler than that of the herbivora, and only occasionally deposits a sediment on cooling.

In chemical constitution these urines present as marked features of difference as they do in physical appearance. Thus, for example, while uric acid, a beautiful crystalline body, exists in the urine of the carnivora, it is entirely wanting in that of the herbivora.

The urine of the herbivora, on the other hand, contains, in its stead, a quantity of a totally distinct organic acid, namely, hippuric, which not only differs in chemical composition, but also in crystalline form. The urine of the omnivora is again found to stand between the two, and contains a portion of uric as well as hippuric acid.

Even in the nature of their inorganic ingredients, these urines differ materially; for, while both alkaline and earthy phosphates are abundant in the urine of the carnivora, they are entirely absent from that of the herbivora. Their place being there supplied by alkaline and earthy carbonates. Here the urine of the omnivora still occupies the medium position, and claims a share of both.

Having now seen that the urine varies in the different species of animals, we are in a measure prepared to consider how and why it should vary at different times in the same animal. The variations both as regards quantity and quality we shall find to depend upon the state of the body, the kind of food and drink, the amount of exercise, the climate, and an infinite number of minor causes, the influence of which will afterwards appear.—*Medical Times and Gazette*, Jan. 2, 1864, p. 4.

29.—ON UREA.

By Dr. GEORGE HARLEY, Professor in University College, and Assistant-Physician to University College Hospital.

Urea is to be found in the urine of all animals, but exists in greatest quantity in that of the mammalia. It never occurs as a urinary deposit, in consequence of its great solubility in water, being, in fact, deliquescent.

Before entering upon the physiological, and pathological relations of urea, it will be necessary for me first to say a few words regarding its appearance and properties.

The urea of commerce is a white, semi-transparent, crystalline body, with a bitter taste. When heated it melts, burns, and gives off ammonia. It is soluble in alcohol, as well as in water, but nearly insoluble in ether. It is readily decomposed by strong mineral acids, and by hydrated alkalies. With chlorine it yields carbonic, and hydrochloric acids. Nitrogen gas being at the same time set free. In contact with animal ferments urea takes up two equivalents of water, and is converted into two parts of carbonate of ammonia.



Hence the peculiar ammoniacal odour of putrid urine.

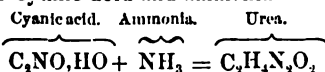
Urea readily combines with nitric acid to form the most important of its salts:—

The Nitrate of Urea (UrNO_3HO), which forms, when rapidly crystallised, flat, shining, rhomboidal plates; when slowly crystallised, fine prisms. It is very soluble in both water and alcohol, but only sparingly soluble when they contain an excess of free nitric acid.

We have here three specimens of urine—man's, horse's, and dog's—representing the three subdivisions of the animal kingdom into omnivora, herbivora, and carnivora; the first two urines have been concentrated to about half their normal bulk, the third is left in its natural state, it being by far the richest in urea. To each I now add equal parts of strong nitric acid, when instantly you perceive they begin to crystallise, and before many minutes elapse each of the liquids will have become one compact mass of shining crystals; I shall be able to invert the glasses without danger of spilling their contents. You observe the crystals are coloured. Those from the dog's urine only slightly, those from the horse's very deeply. This is not owing to the nitrate of urea being a coloured salt, but simply because it happens to be deposited in a coloured liquid, part of the colouring matter of which has united with it; just as sugar—a white substance—when crystallised in a solution of carmine, yields red crystals. The higher coloured the urine, therefore, the deeper coloured the crystals; the paler the urine the whiter the crystals.

With oxalic acid urea forms an oxalate ($\text{UrC}_2\text{O}_4\text{HO}$) which crystallises in prisms and quadrilateral tables, sometimes separate, sometimes adhering together in groups. This salt is freely soluble in hot, but sparingly soluble in cold, water. Hence it is that we occasionally, though very rarely, detect crystals of oxalate of urea in concentrated human urine.

Physiological Relations of Urea.—Urea was first discovered in human urine, and it was for a long time thought to be one of the special products of the animal world. Modern chemistry having, however, succeeded in preparing it artificially from a variety of substances, among which may be mentioned the cyanates of lead and silver; together with the fact of its being also formed by the union of cyanic acid and ammonia—



many persons are inclined to regard it as merely the cyanate of ammonia.

Urea, though found in the urine, is not formed in the kidneys, but only excreted by them from the blood, where it has been detected by Garrod, myself, and others. Picard found 0.016 per cent. in normal human blood, and on one occasion I found as much as 0.320 per cent. In the defibrinated blood of a sheep I found 0.559, and in that of the dog as much as 0.747 per cent. In a normal state the blood of the renal artery contains twice as much urea as that of the renal vein (Picard), but in cases of its retention, both vessels contain about an equal quantity. Wurtz obtained urea from the healthy chyle, and lymph of the ox, horse, and dog. It has been found in the humours of the human eye, and is one of the ordinary constituents of the amniotic fluid of all mammalia; but, as I said before, it owes its presence in the latter situation to the urine excreted by the foetus while still in utero.

It has been asserted by some (Robin and Verdeil) that no urea is to be found in the urine of very young children; this, however, is an error, as I have detected urea in urine taken from the bladder of a still-born child, and in that of an infant aged eight weeks I found as much as five grammes per thousand. In fact, from the subjoined table it will be seen that children actually excrete relatively more urea than adults; and males absolutely as well as relatively more than females, at all periods of life.

Sex and age.	Quantity of Urea in the 24 hours' Urine.	
	Absolute amount.	Relative proportion per
	grammes.	lb. of bodily weight.
	grains.	grms. grains.
Boy aged 18 months	8 to 12=124.0 to 186.0	0.40 6.2
Girl " "	6 to 9=93.0 to 139.5	0.35 5.4
Man aged 27	25 to 35=387.5 to 542.5	0.25 3.8
Woman "	20 to 30=310.0 to 465.0	0.20 3.1

In this table it will be seen that the amount of urea daily excreted is liable to considerable variations. Before attempting therefore, to draw any

conclusions from the changes observed in its amount during disease we must make ourselves thoroughly acquainted with the causes upon which the normal fluctuations depend, and in order to do this the more effectually we must first inquire into its normal source.

No urea has as yet been detected in any of the human solids, except what might readily be accounted for by the presence in them of blood. Its source seems to be two-fold; firstly, the disintegration of the tissues; and, secondly, the excess of nitrogenised food absorbed into the circulation.

The effect of food on the daily elimination of urea is well marked in the results obtained by Von Franque while experimenting on himself:—

Diet.	In 24 hours.		Per hour.		Per lb. of bodily weight.	
	grmcs.	grains.	grmcs.	grains.	grmcs.	grains.
Animal (3½ lbs. of flesh) .	92	= 1416·0	3·86	= 59·8	0·53	= 8·2
Mixed	37	= 573·5	1·58	= 24·4	0·21	= 3·2
Vegetable	28	= 434·0	1·08	= 16·7	0·15	= 2·3
Non-nitrogenous	16	= 248·0	0·69	= 10·6	0·09	= 1·3

It is here seen that on an animal a much greater quantity of urea is excreted than on a mixed diet, and least of all after non-nitrogenised food has been taken. These results are in accordance with those of all other observers, except that the total quantities are greater.

Some suppose that urea comes in no case from the excess of absorbed food, but only indirectly from that portion of it which has undergone metamorphosis in the tissues (Bischoff, Voit, Parkes). If such be in reality the case, it appears to me very extraordinary that when living on a purely animal diet a person should excrete a larger proportion of urea than when living on mixed food, the mixed being the most nourishing diet of the two. Again, if their views be correct, why is it that exercise, which is well known greatly to increase the metamorphosis of the tissues, is not found materially to affect the daily elimination of urea? Thus, Von Franque excreted in twenty-four hours:—

Diet and exercise.	Urea in 24 hours.		For every lb. weight.	
	grammes.	grains.	grammes.	grains.
Mixed, with moderate exercise .	37·983	= 588·73	0·218	= 3·379
Mixed, with much exercise .	37·877	= 587·09	0·217	= 3·363

Actually less urea after much exercise than he did on his ordinary average exercise. On the other hand Dr. Ed. Smith found that prisoners excrete 36 grains more of urea when at hard work than when doing nothing, which, he adds, is 19 grains above what they pass on light labour.

Again, we find that Bischoff in his experiments on dogs observed that they passed most urea when fed on eggs, muscle, and gelatinous substances, and that it increased in proportion to the quantity of food given. These facts all tend to the conclusion that a portion of the urea excreted by the kidneys comes from the excess of food, independent of the metamorphosis of tissue. That all the eliminated urea does not come from this source no one seeks to affirm, for there is abundant evidence against such a supposition. For example, starve an animal as you may, the urea will never entirely disappear from the urine. It can only be reduced to a certain point and no further. Schmidt, Frerichs, Bischoff, and myself have observed this in dogs, and Lassaigue, Scherer, Von Franque, and others have made similar observations on the human urine. The last named gentleman starved himself during forty hours, and still found 19·35 grammes (299·9 grains) of urea in his twenty-four hours' urine. On experimenting on the effects of tartrate of antimony as a slow poison, I found that the urine of dogs, reduced to perfect skeletons, contained such an amount of urea that it crystallised on the simple addition of nitric acid without any concentration whatever.

The amount of urea passed by an animal during starvation is greater, if he has been previously well fed, than if he has only received a sufficiency of

food to prevent his losing weight (Bischoff), which fact probably accounts for Dr. Von Franque passing so much during the time he was without food.

Prout thought that the urea came chiefly from the gelatinous tissues, and Von Franque thinks it comes chiefly from the muscles, but neither of these tissues has been found to contain urea. It is true that Städeler and Frerichs found a considerable quantity of urea in the muscles of cartilaginous fishes; but that proves little, seeing that they detected it in almost all the organs. My idea is, that *urea is not the special product of any one particular tissue or organ, but the united product of all nitrogenised effete matter*. Bechamp and Picard assert that they have converted albumen and other azotised substances into urea by slow combustion with permanganate of potash, and although subsequent experimenters have not been equally successful, we must accept their statement as a fact until the contrary is proven.

Part of the urea may also be formed in the blood by the decomposition of uric acid. This is rendered highly probable, for two reasons—Firstly, Neubauer found on giving rabbits from two to three grammes (31 to 464 grains) of uric acid with their food the quantity of urea excreted in the twenty-four hours was augmented from 2.1 to 4.2 grammes (32.5 to 65.1 grains); and, secondly, when uric acid is acted upon by permanganate of potash it is transformed into several substances, one of which is urea.

We have now to consider how the elimination of urea is influenced by other than animal foods. In the first place, water increases it. The more water we drink, *ceteris paribus*, the more urea we excrete, most probably for the reasons already given when speaking of the influence of water on the urinary solids. Common salt also produces an augmentation in the excretion of urea (Böcker, Bischoff). Coffee has an analogous effect. I found this to be very decidedly the case in one of my friends, Baron G., aged fifty-seven. The daily average of urea excreted by him was 17.28 grammes (267.84 grains), whereas after he had restricted himself to nothing but coffee (without milk or sugar) and dry bread during forty hours he passed 25.3 grammes (382.25 grains) of urea per twenty-four hours.

This diet had an equally striking effect on the amount of water eliminated. His usual average was 1290 cubic centimetres (41 oz.), and on the day in question it rose to 1895 cubic centimetres (60 oz.) per twenty-four hours. This result is contrary to the observations of Böcker and Hammond, who found, on taking an excess of coffee with their ordinary diet, that the daily excretion of urea diminished. But this probably arose from their taking the coffee in the usual way, sweetened with sugar, for there are certain foods which greatly diminish the elimination of urea, and among them sugar holds the foremost rank (Böcker, Bischoff, and Voit). Starch has also a marked effect in diminishing the amount of urea, and I believe that fat may be placed in the same category, for notwithstanding the statements made to the contrary (Böcker and Bischoff), the results of Botkin's experiments on dogs are conclusive regarding the decided diminution of urea which takes place when fatty matters are added to the food. This opinion is further strengthened by the observations of Beneke, who found that cod-liver oil lessens the amount of urea passed by the human subject. In fact, my idea is, that all nitrogenised foods augment, and all non-nitrogenised foods diminish, the amount of urea eliminated by the kidneys. Even gelatine, the nitrogenised substance which of all others is supposed to possess the least nourishing properties, has a decided effect in increasing the daily excretion of urea.

I have entered thus fully into the physiology of urea in consequence of being aware that unless the influence of diet, age, and sex be borne in mind while studying its fluctuations during disease, our labours will be unattended with any practical benefit; while, on the other hand, if these factors are duly considered, we cannot fail to reap important advantage from the knowledge thus acquired, for just as we have seen that its amount in normal urine represents, to a certain extent, the wear and tear of the frame, and is consequently an index to the health of the individual, so also in disease it furnishes us with precisely similar and even more important data; for the amount of urea in the urine enables us not only to judge of the tissue con-

sumption, and, through it, of the severity of the affection, but is at the same time a direct clue to treatment, showing us whether our remedies should be directed to the restraining or encouraging tissue metamorphosis.—*Medical Times and Gazette*, April 16, 1864, p. 418.

30.—A SUMMARY OF THE PROPER DIET IN DIABETES.

By Dr. EDWARD SMITH, F. R. S., Assistant-Physician to the Hospital for Consumption and Diseases of the Chest, Brompton.

1. *Fluids*.—To be limited by degrees daily until they shall not exceed five pounds and a half in both fluid and solid food. Of this quantity two to three pints should consist of new or skimmed milk, and one pint, or less, of tea. In the cold season and at night they should always be given when hot. Of all alcohols brandy is the best, and may be given with water only, or added to milk, or beat up with egg and milk, and given several times daily. No fluid should be given in greater quantity than half a pint at a time, and when milk is reduced in volume by cooking, the daily quantity of fluid must be made up by an additional supply of the same or other fluid.

2. *Solids*.—Dr. Prout's combination of eggs and milk (with sharps substituted for bran) is excellent. Four ounces of sharps and 4 oz. of peas, beans, or lentils may be made into bread or pudding, with milk, or into omelettes with eggs and herbs. Eggs and gelatin may be given when starchy food cannot be altogether intermitted. Eggs, gelatin, cheese, gluten bread, meat, fat, and oils may be given as largely as they can be digested. The free use of salad oil should be urged, whether in the cooking of fish or flesh, or in the use of water-cress as a salad, or drank alone, so that several ounces may, if possible, be consumed daily; but as there are in all persons preferences and dislikes in reference to particular fats, that kind—whether butter, suet, oil, or fat of meat—should be allowed which is the most agreeable. Four oz. of sharps, 3 oz. of wheaten flour, 5 oz. of peas, 1 lb. of meat, 2 oz. of cheese, 2 pints of milk, and 3 eggs, will afford more than about 13 oz. of carbon and 1 oz. of nitrogen daily.—*Lancet*, Feb. 6, 1864, p. 149.

SURGERY.

DISEASES OF THE BONES AND JOINTS, ETC.

31.—ON A NEW OPERATION FOR OBTAINING UNION OF AN UNUNITED FRACTURE.

By E. R. BICKERSTETH, Esq., Surgeon to the Liverpool Royal Infirmary.

In bringing this subject before the attention of the society, the author proposed to mention some cases that had occurred in his practice to show the successive steps by which he arrived at the process in question. He had frequently tried, in vain, friction, acupuncture, and subcutaneous division; and though resections of the ends of the bone had been successful in some instances, it was a proceeding involving a considerable risk to life. Dieffenbach's method had proved to be more successful; but this operation, though conducive to the formation of new bone, in no way provided for what was of paramount importance—viz., absolute immobility of the opposing fragments. The large external wound and injury done to the soft parts in introducing the ivory pegs were also objections to this operation. Recognising the happy influence of Dieffenbach's plan of exciting ossific deposit, and at the same time feeling the importance of keeping the ends of the bone in a condition of absolute immobility, the author was induced to try a modification of the operation; and in the case of a man admitted under his care at the Liverpool Royal Infirmary, with an ununited fracture of the radius, he drilled a hole through the ends of both fragments, and, passing a stout wire through it, secured the bone in perfect apposition. Union took place in seven or eight weeks, but on endeavouring to remove the wire, so much traction was necessary that it caused the fracture again to be ununited. This difficulty of removing the wire induced the author to think of some other plan not open to this objection; and in the case of a man with an ununited fracture of the thigh, by means of a common Archimedean drill, he bored two holes in such directions that each passed obliquely through both ends of the fractured bone, and into each introduced a steel rod with a screw at the end. To do this it was necessary to make an incision three inches in length. Much constitutional disturbance followed, the wound suppurating freely. In ten weeks the splints were removed, but no union had taken place. The limb was then confined in gum-and-chalk bandages. Symptoms of pleuro-pneumonia came on, and he gradually sank. A post-mortem examination showed tubercular deposit in the ends of the bone and other parts of the body. There was no attempt at repair at the seat of fracture, except where the drills had pierced the bone, and here there was a deposit of new bone. This proceeding showed that it was quite feasible to fix the bone in the manner described, without exciting too much inflammatory action; and also that the steel rods caused the formation of new bone.

The next case was a fracture of the lower maxilla, where the bones had united in such a position as to render the patient a most unsightly object. As the incision that would be necessary in this instance, for the purposes both of putting the bone into proper position and removing the deformity of the soft parts, would not allow the use of external splints or supports, and as it was found impracticable to effect this object by fixing the teeth by an appliance within the mouth, it was absolutely necessary that some means should be devised by which the divided portions of the jaw could be securely fixed;

and it occurred to the author that pegs or nails would answer the purpose, especially as he had already observed their presence caused so little inconvenience. Accordingly, at the operation, the plan just mentioned was carried out, and the apposition of the fractured portions was secured by means of two round-headed nails. They most effectually answered their purpose, and no external splint or bandage was required. The case did well, no undue action being set up. On the twenty-second day after the operation one of the nails came away. The patient left the infirmary perfectly well, the jaw being firmly united in its proper position, and the deformity of the soft parts removed. One of the nails still remained in; and the last account states that its presence caused no inconvenience.

The third case recorded was one that presented many points in common with the one just narrated. No external incision was made, and ordinary drill heads were substituted for nails. The result was everything that the author could have wished.

These cases show how readily and with what good effect fractured bones may be fastened together. Surgeons have ever recognised the use of sutures with regard to the soft parts. Why should we not, in cases of difficulty arising from an inability to keep the surfaces in proper apposition, adopt the same plan with the bones? Might not this process be applicable in some cases where division of the tendo-Achilles is required, or where such an operation as sawing off the ends of the bone is indicated? From a consideration of the cases narrated, Mr. Bickersteth proposed to treat an ununited fracture by passing one or more drills through the broken ends of the bone in such a manner as to secure their perfect immobility, and without making any external wound beyond that caused by the entrance of the drill. The limb should then be secured by properly adjusted splints, and kept at perfect rest. After two or three weeks the drills may be removed, and water-dressing applied to the punctures. For several weeks after, it would, of course, be desirable to continue the use of the splints. In conclusion, the author begged to place upon record three cases of ununited fracture recently treated by his friend, Mr. Fletcher, on the plan that he (Mr. Bickersteth) had suggested, and in each the result had been most satisfactory.

Mr. FERGUSSON said that he scarcely remembered to have heard a paper of greater surgical interest than the one just read. It had the merit of bringing out much that was going on in the modern practice of surgery, and he thought the paper would lead to greater improvements in practice. Here was further proof, he continued, of the advantage of wire and metal in instances in which in former times we were loth to use such materials. He had had the impression that ivory pegs, being softer, would be less likely to do harm; but now the author had shown that metal might be safely used. And it had been shown, too, that the commoner metals were as useful as the rarer; that iron wire was as useful as silver wire. In the same way, cauterisation by an iron instrument was just as useful as by a gold or silver one. Dieffenbach had used the pegs of ivory to create irritation only, but the author had gone further, and fastened the bones together by pegs of iron. The author had shown that such might be done in desperate cases of ununited fracture. From hearing the cases related by the author, he should consider that the plan was safe, and that it ought to command attention. Mr. Fergusson said that he once saw Mr. Abernethy attempt to pass a seton between the ends of an ununited fracture. Failing to do so, he left a probe sticking in the wound between the ends of the bones. The result was good.—*Lancet*, March 19, 1864, p. 325.

32.—THE TREATMENT OF FRACTURES.

By FREDERIC C. SKET, Esq., F. R. S., President of the Royal College of Surgeons, and Surgeon to St. Bartholomew's Hospital.

Fractures of the leg I have treated, almost without exception, with the pillow, instead of splints. In all, except in cases of extreme obliquity of the

fracture, the pillow, bound firmly round the leg by three or four straps, effects perfect union without over-lapping, and is by far the most simple and easy method of applying the required lateral pressure to the limb with which I am acquainted. It produces neither abrasion nor irritation of the skin, and no discomfort from undue pressure.—*Lancet*, Jan. 9, 1864, p. 31.

33.—ON RESECTION OF THE KNEE-JOINT.

By FREDERICK LE GROS CLARK, Esq., Surgeon to St. Thomas' Hospital.

[Mr. Le Gros Clark has excised the knee-joint in seven cases altogether. He observes:]

A remark was once made to me by a surgeon, whose opinions are entitled to the highest respect, that although he regarded the operation of resection of joint as an important acquisition to conservative surgery, as thereby amputation was often superseded, yet he feared that not a few joints were subjected to excision which would otherwise have got well by patient waiting and rest. Whether we may be disposed or not to admit the accuracy of this remark, there is no doubt that it was prompted by a just estimate of the difficulties which involve the cases as a class; for it cannot on the one hand be considered a triumph of conservative surgery to sacrifice a joint which might have been saved, albeit the operation is successful *per se*; nor, on the other hand, is it justifiable to risk life by attempting to save a limb, without any reasonable prospect of a permanent relief from a minor operation. There is no doubt that the earlier excision is performed, where there is disorganisation in a joint, the better chance there is of the operation proving successful; at the same time it is important that the possible restoration of the joint, or suspension of disease, should not be anticipated by too early an operation; for spontaneous recovery with a stiff joint is preferable to recovery with the superadded risk of a serious operation.

With such difficulties surrounding the subject, conjoined with the obscurity which involves these diseases as regards the actual condition of the textures implicated, it is evident that each case must stand more or less on its own merits, and that familiar acquaintance with joint disease can only justify a surgeon in determining the time and character of the operation. Yet there are some general rules which may be observed in determining these questions.

The antecedent history and duration of the disease will be taken into consideration. It may be that the interior of a joint—and I refer more especially to the knee-joint—may have been the original seat of morbid action, or the joint may have been invaded by the extension of disease from without, such as caries or necrosis of the cancellous texture consequent on injury or osteitis from cold. I do not, however, attach much importance to these distinctions; if there is disorganisation of a joint, it does not import much whether the morbid changes are primary or secondary, but I think we may fairly look for a more favourable issue where the primary disease was accidental and occurring in a constitution uncontaminated by scrofula or other disease, the presence of which would impair the reparative effort. I think this point is illustrated in the cases on which I have operated. The duration of the disease is important, as it bears on the extension of mischief, in the form of abscess or otherwise, to neighbouring textures, and in the depressing effect it has had on the vital power of the patient. For, no doubt, some patients would rally after amputation, in whom we could not reasonably anticipate a favourable result after excision. As regards age, all the cases which have come under my care have been in comparatively young persons, which, I suppose, is not peculiar. I am, therefore, not prepared to say how far this element in the consideration of a case should influence the surgeon in his election between amputation and resection. The actual extent of the disease has an important bearing on the decision. It is not so much a question of how far the joint itself is disorganised, as whether the disease is lim-

ited to the articular extremities of the bones involved. The course and termination of superficial abscesses, if such exist, should, therefore, be ascertained; and if, thereby, the presence of advanced disease in the bones, at some distance from the joint, is discovered, it would probably be a justification for amputation rather than excision. In doubtful cases an exploration of the parts would lead to a decision as to the proper method of completing the operation. Under all circumstances, after excision, the sawn extremities of the bones should be carefully examined, to ascertain that they are healthy, free from caries, and holding no sequestrum.

I have never had any serious hemorrhage in resection of the knee, and generally the bleeding is trifling compared with what might have been anticipated. The shock, too, is not usually severe; indeed, sometimes very moderate, and followed by moderate and healthy reaction. Pyæmia is said to be destructive in many fatal cases: of this I have no experience.

The operation itself is simple. I prefer a semilunar incision, extending from condyle to condyle, and across the ligament of the patella. The horns of this incision should extend far enough back to secure a free opening of the joint. The bow-saw of Mr. Butcher is by far the best instrument for removing the diseased surface of the bones; it is admirably adapted for this, as for many other purposes. I prefer making the section of the tibia from behind forwards, and generally, if practicable, remove a slice of the femur corresponding to the convexity of its surface. I have found no inconvenience result from this practice, and the limb is thereby curtailed of less of its length. The patella I have always left, after removing its surface with the saw. To the careful removal, by dissection, of all diseased tissue within reach, I attach great importance.

The limb should, if possible, be placed in its permanent position at once, a suitable splint, with cleanliness and perfect rest, being essential. The flap being accurately adapted with metallic sutures, needs no other support; and any dressing, beyond a spirit-lotion on a thin rag, if grateful to the patient, is superfluous. Osseous union is probably, in many cases, deferred for a considerable period. In the second case to which I have referred, the union was evidently only fibrous, though the limb seemed sound, and well able to support the superincumbent weight before it became flexed. Where there is any doubt, artificial support should be afforded for some time after the patient is permitted the use of the limb. This case also illustrates the arrested development of the limb in a growing boy; but we still want more extended and accurate statistics on this point before a decided opinion can be expressed as to how far this risk should influence our practice in the case of the knee-joint; for arrested growth, resulting from excision in a very young child, might leave the subject of it even a more helpless cripple in after life than amputation. There is no doubt that the opinion expressed by Dr. Humphry is correct, viz., that, in most instances, if the line of union between the epiphysis and shaft is not interfered with, the growth of the limb will not be seriously impeded. But this rule is not without exception, as proved in the second case referred to by me.—*Medical Times and Gazette*, March 26, 1864, p. 335.

34. ON THE REDUCTION OF DISLOCATION OF THE SHOULDER BY SLOW MANŒUVRES.

By M. ALPHONSE SALMON.

M. SALMON's plan consists in eluding muscular resistance by the employment of slow and gentle procedures, leading the patient to believe that he is rather engaged in examining the nature of the accident than rectifying the displacement. He is laid flat on his back, and so much on the edge of the bed that the half of the body corresponding to the injured side projects beyond, and is, so to say, suspended outside the bed. Even in health, such a position prevents persons exercising extensive movements with the arm

without making great effort. An assistant stands beside the bed, to give the patient the idea of preventing his falling, but whose principal object it is really to leave him to make every effort with his sound side, for the purpose of securing for himself a solid position on the bed. The limb having been in the meantime carefully supported, so as to avoid all pain, the surgeon, standing by its side, gently grasps the hand and forearm, and draws the extremity from the trunk with extreme slowness, stopping whenever the patient manifests the slightest suffering, gently kneading the muscles situated around the point of the shoulder, frequently asking the patient whether he is giving him pain, and leading him to believe that the examination will be the more easily made in proportion as the pain is slight. All this may occupy some ten or fifteen minutes, during which the arm becomes, little by little, separated from the trunk, and gradually raised until it is parallel with the axis of the body. In order to effect the reduction, the surgeon gently transfers the limb to the care of an assistant, enjoining him to retain it without any effort in the position given to it, and places himself on the inner side of the limb, opposite to the axilla, as if he wished to explore the cavity of the joint. He now grasps the shoulder with the four fingers of each hand, joining them above the acromion, so as to render the scapula immovable. He next carries the two thumbs gently on to the head of the humerus, situated in the axilla, and by exerting some pressure upon it—aided, if necessary, by slight extension made by the assistant who supports the limb—easily causes it to slip into the glenoid cavity. The arm is then brought to the side, and, to the great astonishment of the patient, who generally has not experienced the slightest pain, the operation is at an end.

M. Salmon adduces six cases in proof of the simplicity and efficacy of the procedure, and exhibiting its superiority to those more forcible means commonly used, which cause much suffering, and often defeat their own object.—*British and Foreign Medico-Chirurgical Review*, Jan. 1864, p. 265.

35.—ON AMPUTATION OF THE THIGH BY TEAL'S RECTANGULAR FLAPS.

By Dr. GEORGE H. PORTER, Surgeon to the Meath Hospital and County of Dublin Infirmary.

It is often a matter of extreme difficulty, in disease of a joint, to ascertain, accurately, the full extent to which the bones entering into its formation are damaged. When sinuous openings have formed about the part it is comparatively easy to discover the amount of injury by means of a probe passed through those apertures; but when such do not exist the uncertainty is much augmented. Formerly, I believe, very many limbs were amputated in consequence of the difficulty just mentioned, which would now be saved by resection. Fortunately the success of cutting out the diseased portion causes us no longer to look upon the loss of the limb as requisite; and, on the other hand, the free opening of an articulation to examine its condition in no way interferes with subsequent amputation if too extensive destruction be found within. The case I am about to mention is one which very strikingly manifests the great necessity of ascertaining, beforehand, the state of the ends of the bones, proving that a large amount of disease may be present, when, to all appearances, it was of a limited degree; and that laying the joint open for inspection does not, in any way, prevent further operation, but, on the contrary, would rather suggest exploration, in all doubtful cases, prior to the removal of the limb.

M. S., aged nineteen years, was admitted into Meath Hospital February 11th, 1863. She gave the following history of her case:—When thirteen years of age, while running on an errand, she fell to the pavement on her left knee, and a fortnight afterwards the joint began to swell and become painful. She then gained admission into one of the hospitals of this city, but remained only a few days under treatment. At this period she was lame from stiffness and pain in the knee; but was able to walk about until May, 1862, when be-

coming much worse, she sought admission into the Meath Hospital, where she remained nearly five months, undergoing treatment calculated to bring about an ankylosed condition of the articulation. All this time her general health did not suffer to any marked extent. On the contrary she looked well and fat; and, feeling relieved, left the institution for the country, a strong leather case or mould having been previously placed round the joint. In this state she moved about on crutches, and occasionally visited the hospital, as an external patient, up to a week before her last admission, when she was attacked with swelling, excruciating pain in the knee, and frequent startings. On examination I found the joint slightly flexed, but much enlarged, measuring two and a half inches in circumference more than the sound one; it had a globular shape; the sulci on each side of the patella were obliterated, and exquisite tenderness was evinced when it was touched, particularly at the inferior and inner side of the articulation. The lower end of the femur did not appear enlarged; nor did the upper extremity of the tibia seem altered, but it was slightly displaced backwards, and could be moved a little in every direction, on the end of the thigh bone, showing that the ligaments no longer retained their healthy firmness and strength. This motion gave great suffering. The thigh and leg were placed in a well-fitting case which kept the joint in a state of perfect repose, but allowed the front of its surface to be exposed. Leeches were, from time to time, applied, followed by soothing applications; but she began to lose her rest, and suffered great torture. The startings became very distressing at night; and yet, strange to say, her health was not visibly impaired; her appetite continued good, and all her functions seemed to be performed normally. Towards the end of June, however, matters began to assume a graver aspect; she suffered from profuse nocturnal sweats; the pain became so intolerable that sleep was impossible; her appetite, for the first time, failed, and henceforth she daily entreated that the limb should be removed.

Such a state of things could not be permitted to continue; and, in consultation with my colleagues, on the 6th July, it was agreed to excise the joint; her age, state of health, and the *apparently* small amount of disease in the ends of the bones leading to the conclusion that it was a most favourable case for operation. Accordingly, on the 15th July, having had her put completely under the influence of chloroform, I proceeded in the following manner:—She was placed on the operating table, in the recumbent position, the limb having been steadied in the most extended position practicable. With a stout scalpel I made a deep incision along the inside of the articulation, four and a half inches in length, commencing about two inches below the head of the tibia, and extending up two and a half above its articulating surface; keeping here in front of the saphena vein. An incision, similar in length, and on the same level, was made on the outside; and in both of these the knife was carried down to the bone. The joint was then fairly opened by a third incision across, about one inch above the insertion of the ligamentum patellæ. At this moment some pus flowed from its cavity. I then dissected the lower flap downwards, and also freed the upper, with the patella lying in it. The lateral ligaments were then quickly divided; the anterior crucial was gone. I now carefully, but rapidly, detached the soft parts from the posterior surface of the femur, when the ends of the bones, on being completely exposed, were found to be almost entirely stripped of cartilage. Having applied a narrow-bladed saw behind, just above the condyles of the femur, I quickly sawed them off. The section of bone appeared of a dark red colour, very soft to the touch; it broke down easily under pressure, and was infiltrated with purulent matter. The upper extremity of the tibia was found to contain an abscess, which passed downwards to the extent of an inch or more. With this amount of destruction to bone an attempt to save the limb was out of the question, and amputation was imperative.

It struck me that this was a very suitable case in which to adopt Mr. Teale's mode of amputating; and, according, I prolonged the lateral incisions upwards, about five inches, with an amputating knife; and, having *cleared the anterior flap* from the surface of the femur, I quickly drew the

knife across, beneath the thigh, cutting the posterior flap, as nearly as I could guess, one fourth the length of the anterior. Separating the soft parts from the bone, close to the periosteum, a little way upwards, I sawed it through, and, finding the cut surface at this height healthy in aspect, I proceeded to secure the vessels. My next step was to remove the patella from the anterior flap, which was done with facility. I now folded the long flap over the end of the bone, and attached its free angles to those of the shorter one behind by means of two silver wire sutures, the insertion of six more stitches, two in each lateral and two in the transverse line, bringing the parts into good apposition. When the flaps were brought together the anterior seemed too long, so much so that I was almost tempted to shorten it a little, but desisted from remembering Mr. Teale's statement, that "it often appears superabundant, but in result it is not found to be so, chiefly in consequence of the great retraction of the short flap." The patient having been removed to bed, the stump was laid on a pillow covered with waterproof sheeting, and a large piece of wet lint placed over it. With the exception of changing the lint every morning, no other dressing was had recourse to for six or seven days, and any discharge was with ease cleansed by a sponge from the sheeting beneath. The wound healed most kindly, and the ligatures came away at the usual period in amputations of the thigh. It would be uninteresting to describe the progress of this case from day to day; but it will suffice it to add, that the stump turned out in every respect such as was desired. A thick soft mass, devoid of large nerves, covered the end of the bone, was movable on it, and formed a good cushion to bear future pressure. The lithograph, by Forster and Co., from a drawing by Mr. Tomsohn (Plate I.), gives a very accurate representation of the stump when healed.

The chief features of interest in this case, I conceive, are:—The extensive disease in the joint, unaccompanied with proportionate constitutional disturbance until a very late period—the absence of sinuous openings about the joint—the great difficulty of forming an opinion as to the extent of damage to the bones—and the facility with which one operation was converted into another. As far as I am aware, it was the first recorded occasion on which this mode of amputating was performed in Dublin; and also, if I am not mistaken, the first case of its adoption where resection was found not to be practicable, and the immediate loss of the limb required. Since this operation, my colleague, Mr. Collis, performed amputation in the same manner in two other cases. They turned out most successfully, and seemed in every way likely to possess all the advantages said to belong to rectangular flap amputations by the distinguished surgeon who first recommended them.—*Dublin Quarterly Journal*, Nov. 1863, p. 262.

36.—NÉLATON'S PROBE: WITH CASE.

By Dr. F. H. HAMILTON, Surgeon U. S. A.

This excellent little instrument has not been brought into the general use and appreciation to which it is already entitled; indeed, its value was fully declared when on its first trial; and in the person of the illustrious Garibaldi, a problem was solved, which had puzzled the most skilful European surgeons. The records of this hospital show several cases where Nélaton's probe has discovered the presence of lead, and, in one case, of iron, where their existence was never suspected, certainly not known. Thus a grape-shot, weighing two ounces, was discovered, and removed by Dr. James B. Cutter, from the calf of the leg; the patient previously averring that the ball had gone "clean through." In this case the iron, being rusted, left upon the probe a brownish stain. In the following case the instrument discovered the presence of lead.

M. G., private 7th Connecticut Vols., was admitted with a gunshot wound of the left leg, a short distance above the ankle-joint. His medical attendants upon the field had informed him that the ball had merely glanced

across, but had not entered the bone. The patient was firm in his belief that there was no ball in the wound. Three months after the receipt of the injury, when under my care, at the McDougal General Hospital, the wound showed no signs of healing; and this fact, together with the thin, dark-coloured discharge, led me to suspect the presence of some foreign body, other than dead bone, notwithstanding the statements of the patient to the contrary. I therefore introduced one of Nélaton's probes, and carefully explored the cavity. Removing the probe, and washing off the blood, I found the presence of lead indicated by several marks on the porcelain. Soon after I enlarged the wound, and, cutting down into the tibia on its outer surface, found a small opening into the bone, where the ball had entered. With some difficulty, I then extracted from the substance of the bone, where it was firmly impacted, an entire Minié rifle ball, slightly flattened at its apex. I also removed some pieces of dead bone.

After this the wound proceeded to heal kindly, and was soon entirely closed. Necrosis had already occurred in consequence of the presence of the foreign matter, but by its removal the further extension of the necrosis was prevented. These cases would scarcely, in themselves, be of sufficient importance to merit a special record, were it not that they, as well as any others, serve to illustrate the great value of the instrument. The negative evidence furnished by the probe is often as valuable as the positive, for if, upon a thorough and skilful examination of the wound, we fail in obtaining the evidence of lead or iron upon the probe, we are far more confident in asserting that there is no such foreign substance remaining, than we should be after such an examination with the common gunshot probe.

After withdrawing the probe, the blood, pus, or other matter should be removed, by carefully passing the porcelain ball through a basin of clean water three or four times; when the marks, if there be any, of lead or rusted iron will be left plainly defined upon the surface of the bulb. Of course, these marks should be carefully removed before using the probe again.

It would be well, I think, for each surgeon in the United States service to be furnished with at least two different sizes, one of which ought not to be more than one-eighth of an inch in diameter, and which might be used in searching for buckshot, or in traversing channels made narrow by swelling of the tissues; and the other ought to be about one-quarter of an inch in diameter. This little size, I am satisfied, is large enough for any purpose for which it may be used. If intended for a pocket case, the handle or shaft of the instrument may be made in two pieces, to be screwed together, by which means its length may be increased; or it may be made to fit on the gunshot probe. If the surgeon prefers, also, the two porcelain balls of different sizes may be fastened upon the opposite ends of the same probe, or upon two probes which may be screwed together, by which the length of the instrument could be doubled at pleasure. When the instrument is kept in a pocket case, it ought always to be protected by a neat, securely fitting leathern or gutta percha case, such as I have seen made by that ingenious instrument maker, Mr. Tiemann, of New York. In my opinion this probe ought to be added to the instruments which the government supplies as an outfit to the army surgeons.—*Amer. Med. Times.*—*Dublin Med. Press*, Jan. 20, 1864, p. 65.

ORGANS OF CIRCULATION.

37.—ON ACUPRESSURE.

By Dr. J. Y SIMPSON F. R. S. E., Professor of Medicine and Midwifery in the University of Edinburgh.

[In the first part of this paper Dr. Simpson considers the impediments to the primary union of wounds, one of the chief of which he thinks is the use of ligatures to the vessels. It is on account of there being no necessity for

their employment in what are known as the plastic operations of surgery that we have, as a rule, union by the first intention. Thus the raw edges of a vesico-vaginal fistula almost always cohere, despite the constant contact of urine; the lips of a ruptured and revived perineum, despite the irritation of the intestinal contents; and the wound in harelip, despite the presence of the saliva. Dr. Simpson then proceeds to ask the question,]

Why do the Ligatures interfere with the Primary Adhesion of Wounds?

Arterial ligatures prevent the primary union of the lips of wounds in two ways—

1st. Each ligature acts itself as a mechanical foreign body placed between the opposed sides of the wound; and when it is composed of silk or other organic material, it rapidly imbibes animal fluids into its substance, which dead fluids speedily decompose and render the threads morbidly poisonous and irritant agents to the contiguous lining tissues. In other words, each arterial ligature is formed speedily into a small or miniature seton; and it produces, like a seton, suppuration along its tract. Suppuration, however, and all the higher grades of inflammation, are locally antagonistic of adhesive inflammation or primary union; and they tend to impede and subvert those processes of cohesion and repair which constitute union by the first intention. But—

2ndly. Ligatures counteract the simple adhesion and healing of wounds in another and far more marked mode. They inevitably set up at all the ligatured points and ends of the tied arteries themselves, stages of inflammation higher than the adhesive—the stages, namely, of ulceration, suppuration, and mortification. For at the point of deligation every ligatured artery has its two inner coats mechanically torn through by the thread, and its outer coat strangulated by it; and before the separation of the ligature can be effected, it requires to cut through the strangulated tube by a process of ulceration or molecular disintegration and gangrene. Further, there are set up, as a consequence, in the immediate vicinity, the processes of local disjunctive inflammation and suppuration; and the part of the arterial tube embraced in the noose of the ligature constitutes a small, dead, decomposing *slough*, as well as the isolated and strangled end of the artery below the ligature, except in instances in which this isolated end is preserved from death by adhesion to the contiguous surfaces. If two, four, or six arteries, therefore, are tied in a surgical wound, then, in consequence of this deligation, there exist two, four, or six points of destructive *ulceration* and *sloughing* in the depths and walls of that wound. And, of course, complete primary adhesion of its sides becomes an improbability, or rather an impossibility.

All our best surgical pathologists acknowledge this ulceration and sloughing as the inevitable and invariable result of the ligature of arteries. Generally the dead tissue is thrown off in small slough masses; to a considerable extent, also, it seems to be melted down and discharged in the form of disintegrated ulceration molecules. We tie and strangulate the necks of piles and polypi to make them ulcerate and slough off, just as the tied and strangulated ends of arteries do. Mr. John Bell, when treating of the effects of the ligature of the artery, uses this very expression:—"The part of the artery "below the ligature is (says he) destroyed like a polypus, fades and dies; and it is the fading of the lower part thus *mortified* that allows the noose of the ligature to slip off." Or, to quote the words of Dr. Wise (a very careful observer, and a gentleman who has specially attended to this department of pathology), after deligation of an artery—"an *ulceration* of the compressed part takes place about the fifth or sixth day, and the ligature is slowly discharged about the twelfth or fourteenth day, being thrown off by a *gangrenous* process, together with a small portion of the vessel which had been compressed by the ligature." "Every surgeon knows," observes Mr. Spencer Wells, "that the part of the artery beyond the ligature *must be killed* by it, and that a piece of *sloughy* tissue cannot do any good when confined among the living tissues of the body."—(Medical Times and Gazette, May, 1860.) I might, if it were necessary, cite for you Guthrie, Cross, Brodie, Hodgson, Erichsen, Pécot, Velpeau, Nélaton, and others, as

all describing the portion of every artery strangled and isolated by the ligature as killed, and requiring to *slough* off. Let me, for brevity's sake, however, content myself with adducing the statements on this point given by the authors of three of the latest and best works on Systematic Surgery, published respectively in America, France, and England:—"That portion of the artery (I quote the words of Professor Gross, of Philadelphia) immediately embraced by the ligature *mortifies*, and comes away in the form of a *slough*."—"System of Surgery," 1862, vol. i., p. 700.) "The portion of artery," remarks M. Chassaignac, of Paris, "embraced by the ligature *necessarily mortifies* a little sooner or a little later, according to the degree of constriction put upon it; and it is only in consequence of an eliminative process, similar to that which in gangrene separates dead from living parts, that it is detached from the tissues which surround it."—"Traité des Opérations Chirurgicales," 1861, tom. i., p. 231.) "The noose (of the ligature) and its contained *slough* are," remarks Professor Miller, "to all intents and purposes, foreign matter; as such their presence will be resented by the surrounding living textures; and as such they will be extruded by suppuration."—"System of Surgery," 1863, p. 224.)

If any surgeon, desirous, as all ours are, of producing primary union, had the hardihood to propose, as a new mode of treating wounds (such as those produced by amputation), that there should be placed between their flaps a series of four or five small seton-threads, and that each individual seton-thread should, for a week or two, be firmly fixed and anchored down in the depths of the wound to a corresponding number of small masses of strangulated, dead, decomposing, sloughing tissue—would not such a suggestion, I say, be met by the profession with perfect amazement, and denounced as ridiculous and discreditable, or something worse? Yet, in reality, this, as we have just seen, is the principle followed at the present hour by our surgical brethren, when they staunch the hemorrhages which follow their knife, by tying silken ligatures around the drawn-out and isolated ends of the bleeding arteries. Is it a great marvel that primary union so seldom occurs in wounds so managed? Would it not be a still greater marvel if union by the first intention followed oftener under such adverse circumstances?

We cannot hope, I believe, for any great and decided improvement in the treatment of wounds, and we cannot expect primary union to be frequent in them, till we have attained some means of arresting hemorrhage without strangulating and sloughing the ends of the bleeding arteries. For the accomplishment of this object, other simpler and safer means than acupressure may, and probably will, be discovered; but in the mean time, it has been found capable of occluding wounded and cut arteries without producing upon them any physical laceration, such as the ligature produces, without strangulating and sloughing their isolated extremities, and without leaving any foreign bodies in the wound after the vessels are occluded. Acupressure is founded upon the general pathological principle—that, whilst silk and other dead organic ligatures and substances excite irritation, suppuration, &c., when they are buried in the living structures of the body, there is, on the contrary—

A tolerance of Metallic Bodies by the Living Tissues.—We have ample proof of the truth of this great general law in many kinds of observation, as in the tolerance—sometimes for long years—of bullets, small shot, pins and needles, imbedded in different parts of the body; in the non-irritating character of threads of iron, silver, platinum, &c., when used as surgical sutures; in the employment by all our best surgeons of metallic pins or needles in the union of hare-lip; and in the safe retention, during several days, of a metallic needle passed through a fold of the peritoneum itself, in the operations of Wutzer, Rothmund, and others, for the radical cure of hernia. The use of a needle in the cure of hernia and of hare-lip—where the whole aim and the deliberate object of the surgeon is to secure and establish adhesion and adhesive inflammation—only shows that a needle, when used to close and compress an artery, as in acupressure, is not likely in itself to lead there to any higher stage or inflammation than the adhesive—

and consequently will not interfere, when used as a hæmostatic, with the primary union of wounds. At the same time, let me qualify this remark with another :—if a metallic acupuncture needle, or a metallic suture thread, be made to press too long and too strongly on any given point of living tissue, that point will ulcerate. But the ulceration, under these circumstances, is not the result of the pressure of the metallic needle or thread, as metal ; it is not, in acupuncture for example, the result of the pressure of the needle as a needle ; but it is the result of the *pressure* of the needle simply as pressure, morbidly excessive in its amount. And any similar degree of linear pressure, by any other mode whatever, will produce the same ulcerative appearances.

That even very long needles may be borne with perfect impunity embedded for days in the living body, is attested by numerous experiments that were performed on the human body, some forty years ago, by various surgeons, when acupuncture was more studied and practised than now. "It is a remarkable circumstance (observes a writer on this subject) that the acupuncture needles never cause inflammation in their neighbourhood. If they are rudely handled or ruffled by the clothes of the patient, they may produce a little irritation ; but, if they are properly secured and protected, they may be left in the body for an *indefinite* length of time without causing any of the effects which usually arise on account of the presence of foreign bodies. In one of M. Cloquet's patients they were left in the temples for eighteen days ; and in cases in which needles have been swallowed, they have remained without causing inflammation for a much longer period. It appears probable, from the facts collected on this subject, that metallic bodies of every kind may remain imbedded in the animal tissues without being productive of injury."—(See the Edinburgh Medical Journal for 1827, p. 197.)

Effects of Acupressure Needles.—Needles, then, are—as metallic bodies—tolerated by the living structures. To occlude a vessel, they require, as experience has amply shown, to be retained for a few hours, or a few days at most ; and further, when passed with this view across the mouth or tube of an artery, they merely place the internal surfaces of the vessel in close contact : without isolating the vessel from its attachments : without lacerating its two internal coats ; and without strangulating, ulcerating, and mortifying the constricted portion of the tube, all of which injuries and lesions are, as we have found, inevitably produced when the deligation of arteries is adopted. In thus using against hæmorrhage acupressure needles instead of ligatures, we attempt to bring all bleeding wounds in general surgery to the condition, as far as possible, of wounds in plastic surgery, where union by the first intention is the expected and general result. We secure the bleeding arteries by unirritating metallic needles, and we withdraw them as soon as we can, so as to leave ultimately *no foreign body whatever* in the wound. Ligatures cannot be withdrawn for an indefinite period, or till, after days or even weeks, they have ulcerated and sloughed through the tied vessel. We can at once remove, on the contrary, our acupressure needles always at will, and whenever we deem that they have produced their occluding effect. But I am forestalling some observations ; for, before considering how short or how long a time the needles should be left in, we have another matter than this to consider first, namely, the—

Apparatus required for Acupressure, and the methods of applying it.—The instruments required for the employment of acupressure are of the simplest kind. They are chiefly applied in three modes. In the first method, the only instrument required is a long needle headed with glass or sealing-wax to allow of sufficient pressure upon it for its introduction ; in the second method, a short common sewing needle threaded with iron-wire or with silk ; and in the third method, the same needle along with a loop of very slender wire thread of four or five inches in length. The three chief methods of applying the needles are as follows :—

1st Method.—This was the mode which I generally adopted in the first acupressure operations. It usually consists in passing a long needle twice

through the flaps or sides of a wound, so as to cross over and compress the bleeding artery or its tube, just in the same way as in fastening a flower in the lapelle of our coat, we cross over and compress the stalk of it with the pin which fixes it, and with this view pass the pin twice through the lapelle. The only portion of the needle which is left exposed internally on the fresh surface of the wound is the small middle portion of it, which bridges over and compresses the arterial tube at its bleeding mouth, or a line or two or more on the cardiac side of it. More or less of both extremities of the needle, viz., its head and point, are exposed externally on the cutaneous surface of the side or flap of the wound. When passing the needle in this method, the surgeon usually places the point of his left fore-finger or of his thumb upon the mouth of the bleeding vessel, and with his right hand he introduces the needle from the cutaneous surface, and passes it right through the whole thickness of the flap till its point projects for a couple of lines or so from the surface of the wound, a little to the right side of the tube of the vessel. Then by forcibly inclining the head of the needle towards his right, he brings the projecting portion of its point *firmly* down upon the site of the vessel, and, after seeing that it thus quite shuts the artery, he makes it re-enter the flap as near as possible to the left side of the vessel, and pushes on the needle through the flesh till its point comes out again at the cutaneous surface. In this mode we use the cutaneous walls and component substance of the flap as a resisting medium, against which we compress and close the arterial tube. But in some wounds a neighbouring bone or other firm unyielding texture forms the best and readiest point of resistance against which to pin and compress the artery by the acupressure needle. In such cases, the end of the finger at the bleeding point is sometimes necessary to assist the needle in duly pressing it down upon or against the open vessel. In both those modifications of acupressure a thick flap or a vessel situated deeply requires a proportionally longer needle; and the amount of pressure upon the artery is easily regulated and increased, when required, by the acuteness of the angle which the needle makes in its passage over the arterial tube. The degree of compression required to shut an artery by acupressure is generally by no means great, especially if care is taken to pass the needle as near as possible to the arterial tube, and without a layer or layers of elastic tissue intervening between them. This needle can be withdrawn at will, at any hour or time, by pulling at the head of it; which, I have said, is placed externally.

There are some objections to using such long needles in acupressure when they can be avoided. They are liable to be passed so as to compress the included tissues too strongly; they compress, however slightly, an unnecessary extent of tissue; and, being partly external, they are liable to prove unwieldy and incommodious in putting on dressings, &c., to the wound, provided we do use such applications to it.

In the method of acupressure which I have described, the long needles are introduced from the cutaneous surface, and their extremities left out *externally*. In the two other methods, where sewing-needles are used, they are introduced on the raw surface of the wound, and are all situated thus altogether *internally*, or between the lips of the wound.

2nd Method.—A common short sewing-needle threaded with a short piece of iron-wire for the purpose of afterwards retracting and removing it, is dipped down into the soft textures a little to one side of the vessel, then raised up and bridged over the artery, and then finally dipped down again, and thrust into the soft tissues on the other side of the vessel. In bridging over the vessel care must be taken to press the end of the needle down upon the mouth or tube of the bleeding artery with force sufficient to arrest the hemorrhage. The end of the finger pushed against the projecting portion of the point's-end of the needle is often required thus to compress and close the vessel adequately, before the tip of it is sent outwards and fixed in the tissues beyond.

3rd Method.—This consists in compressing the vessel between the threaded sewing-needle and a duplicature of passive iron thread. Here, as in the method last related, the cutaneous surface is left intact; but the nee-

die is passed *below*, instead of over or above, the artery. The point of the needle is entered a few lines to one side of the vessel, then passed under or below it, and afterwards pushed on so that the point again emerges a few lines beyond the vessel. The noose or duplicature of wire is next thrown over the point of the needle; and, after being carried across the mouth or site of the vessel and passed around the eye end of the needle, it is drawn sufficiently tight to close the vessel, when it may be fixed by a half-twist or twist around the stem of the needle. A slight half-twist usually fixes a rigid wire-thread sufficiently. If the operator prefers, he may keep the two threads of the noose open after they bridge across the artery, and tie them below or behind the eye end of the needle, in the form of a common single or double knot. But this tie takes much longer time than the twist, and is not more efficient. When in either case the operator wishes to remove this simple acupressure apparatus after a period of, say five, twenty, thirty or more hours, all he has to do is to withdraw the needle by pulling it out, by dragging at the twisted wire with which it is threaded. The noose of wire-thread is thus at once loosened and liberated, and can be withdrawn also. To distinguish easily between the wire-thread passed through the eye of the needle and the duplicature of wire, it is always convenient to make the former by having it plaited or twisted.

[When should the needles be withdrawn? Much more investigation and practice are required before this and some other questions regarding acupressure can be answered. Dr. Struthers was the first surgeon who had the boldness to apply acupressure to the femoral in an amputation of the thigh—he did not remove the needle from the artery till the fourth day, or about ninety-eight hours. In a successful amputation of the thigh, also for traumatic spreading gangrene, Dr. Handyside removed the needle over the femoral in forty-nine hours.]

In the following instance of amputation of the thigh for chronic pathological disease, performed by Mr. Crompton, Senior Surgeon to the General Hospital, Birmingham, the needles were left for fifty-two hours:—

Case 1.—Amputation of the thigh for Scrofulous Disease.—Needles Removed in Fifty-two Hours.—On February 29, 1860, Mr. D. Crompton amputated a young man's thigh, for strumous disease in the femur, and consequent degeneration of the cartilages of the knee-joint. Two acupressure needles sufficed to arrest the bleeding, one of them pressing on the femoral artery, and the other pressing upon two small muscular branches. After fifty-two hours, the needles were all withdrawn. On March 29, or exactly four weeks after the operation, Mr. Crompton sent me a cast of the stump, with a note, stating that the young man was, then quite well. In this case no rollers or plasters, nor, indeed, dressings of any kind, were applied to the stump.

In the following case, reported to me by my friend and former pupil, Dr. Hamilton, the needle was removed from the femoral artery after forty-eight hours. The case occurred in the practice of a very able young surgeon—Mr. Brown, of Carlisle.

Case 2.—Thigh Amputation and Primary Union.—Needles Removed in Forty-eight Hours.—The patient was a man of fifty years of age, and had suffered for two years from ulceration of the cartilages of his left knee-joint. Two sinuses connected with the joint were discharging profusely pus of a very offensive character. The poor man was reduced to such a state of emaciation and debility, that when he came down from near Carlisle to Edinburgh for the purpose of undergoing amputation, one of our most distinguished surgeons refused to undertake the responsibility of operating. He, therefore, returned to Carlisle, where amputation was performed by Mr. Brown, after Teale's method, at the lower third of the thigh, and five bleeding vessels were acupressed. Forty-eight hours after the operation all the needles were withdrawn. Primary union took place throughout, except at a single spot where one of the sinuses, already alluded to, had been cut across. The patient was able to be dressed and down-stairs within four weeks, and in six weeks he was driving out alone in his gig daily; his general health good, and his strength rapidly returning.

Local Requisites for the Primary Union of Wounds.—The closure of extensive wounds in which acupressure is used to arrest the attendant hemorrhage, is still the exception, and not the rule. It is one of the elements, and, as I believe, a very important and necessary element, in our attempts to effect primary union; but there are other elements and circumstances which must also be most carefully attended to. The sides or flaps of the wound must, if we expect primary union of them, never be of a kind to require pulling and tension, either to bring them together or to keep them in apposition. If they are too small and short for this purpose, or if the stitches holding them require to be put or kept on the stretch, then union by the first intention becomes scarcely possible. Surgeons will probably come yet to shape their wounds and flaps more systematically than they do even at present, so that the sides and edges of their resulting wounds lie fully and easily in contact. If the sutures, whether metallic or silken, be placed upon the strain, they will cut through the lips of the wound by ulceration to the extent necessary to relieve the strain. When the lips of the wound are ultimately adjusted, and accurately and carefully fitted to each other, no one of the sutures must be found on the stretch and deeply indenting the points on which it rests and presses; for, if so, those points will soon become irritated and ulcerated, and the act of primary union will be more or less interfered with. But still more, when we strive for primary union, we must beware of leaving any foreign and dead materials—however small and almost molecular they may be—on the sides or in the cavity of the wound. In an amputation wound, when the saw divides the bones, the resulting dead particles of bone-dust are freely scattered all around. Any of these particles left on the surface of the wound would infallibly prevent primary adhesion at the points where they were lodged; nay, they would sooner or later set up suppurative inflammation ere they were finally discharged. They must all be carefully removed by sponging, or, still better, by a stream of water allowed to fall upon the wound; for even our sponges sometimes leave flakes and fragments of their tissue upon the surface of the wound, which, though they may be minute, are still dead foreign bodies. Of course, it is needless to close up a wound and expect it to heal by primary union if you allow coagula of blood to remain lodged within it. These coagula act again as foreign bodies, both inevitably preventing present adhesion, and inevitably producing future suppuration. The wound must not be shut up till all bleeding has ceased; and to prevent the mischance of any coagula forming for the next few hours, some surgeons do not close their wounds till six or eight hours have elapsed. In closing large wounds, particularly large amputation wounds, it is further, I am inclined to believe, a matter of great moment to bring the flaps most carefully together from below upwards, so as to preclude the possibility of a small collection or collections of atmospheric air being left in the depths or between the approximated sides of the wound. I fancy that I have seen the flaps brought together first and chiefly along their edges, so that a quantity or quantities of air were left lodged within. Like any other foreign body which keeps the opposed walls of the wound from approximating and touching perfectly, air, even in small quantities and bubbles, will as effectually prevent primary adhesion at the parts or points at which it is located as the same bulk of dead solid materials would. Whilst it is thus a great and indispensable indication to free the surfaces of the wound from all foreign matters that can possibly prevent them coming everywhere into close and accurate contact, it is sometimes necessary, also, by the position of the wounded part—by the use, if necessary, of slight bandages, and by supporting sponges or light pads placed externally—to retain the opposed surfaces in the same close contact till they regulated together in sufficient strength by the reparative process. In other words, it is necessary, not only to place the sides of wounds in accurate contact, but it is necessary also to *keep* them thus in accurate apposition. The mere shallow cutaneous edges only of large wounds are usually brought together by the superficial stitches that are used; but if the stitches be made by metallic sutures planted so deep as to embrace the sides of the wound to a considerable extent, bandages, plasters, and dress-

ings are very seldom required. The mere atmospheric pressure keeps the sides of a wound in contact when once its lips are accurately closed and sealed up with an adequate number of metallic sutures. And certainly the fewer local dressings and applications we require to place about a wound, the greater, perhaps, is the chance of its successful repair and reunion. I believe, in other words, that, after the sides and edges of a wound are properly approximated and adjusted with its metallic stitches, the best dressing, as a general rule, is—nothing, absolutely nothing. I have seen full and testing proof of this in the large wounds left by excision of the mamma, and by ovariectomy. We have not easily the power of applying any dressings, or ointments, or lotions to cases of vesico-vaginal fistulae immediately after they are operated upon; and it is, perhaps, fortunate that it is so; for, probably, these vesico-vaginal wounds close by primary union with the comparative certainty, and in the large proportion which we see in practice, greatly because we are shut out from intermeddling with them, therapeutically or surgically, after they are once stitched up. We cannot overload and overheat them, as was too often done in former times, in "dressing" external wounds with complex layers of ointments, pledgets, straps, rollers, &c. Even a dressing of charpie and cold water to a recent wound is, perhaps, more hurtful than useful. It busily unmakes what nature is busily making—a crust along the edges of the closed wound. If the lips of it become red and irritated or inflamed, apply to them cold air, and you will find, as I have found, that a stream of it directed upon the wound or its vicinity from a pair of bellows will prove both beneficial locally, and most grateful to the feelings of the patient.

[In answer to the question, "*Is not the Acupressure more difficult than the Deligation of Arteries?*" Dr. Simpson observes:]

In its present condition, however, the surgeons who have tried it have found it as easy, at least, as the ligature. After using acupressure in two cases of amputation of the fore-arm, Dr. Greig, of Dundee, wrote me that he found the needles "applied quite as easily as the ligature." "The process (says he) so far as I have tried it, is *the simplest* that one can imagine. . . . It is really surprising how very little pressure is required to stop bleeding from an artery." "In giving directions for securing the vessel, you advise the surgeon to place the forefinger over its bleeding mouth, &c. Now, you will find it much better, when you have a flap, to keep the forefinger of the left hand on the skin side, and use the thumb. You feel the vessel beating between the thumb and the forefinger, and you can *introduce the needle in the dark.*"

In the first case of amputation in which Dr. Handyside used acupressure, he had to undertake the operation at a distance in the country, and improvised some long "darning" needles into acupressure implements for the occasion. He fixed knobs of red sealing-wax upon the heads of them to facilitate their introduction. At that time the two easier modes of effecting acupressure by common short sewing needles had not yet been thought of. But, in order to show you that Dr. Handyside found no difficulties in the application of acupressure even with the long needles, let me state in a few words his case, which was a very interesting one, and then quote the comments which he has himself published on it in reference to the question of the relative facility or difficulty of acupressure.

Case 7.—Amputation of the Upper Third of the Thigh for Traumatic Spreading Gangrene.—The patient received a very severe lacerated wound of the leg, with compound fracture of both bones, from a loaded waggon running against him down a steep incline. Gangrene supervened, and in five days afterwards, when Dr. Handyside was summoned from town to see him, he was delirious and prostrated; the mortification had reached the knee, and was spreading upwards: the inguinal glands were much enlarged, and the lymphatics of the limb tense: the pulse rapid, weak, and irregular; and the skin cold and clammy. Dr. Handyside performed amputation of the thigh immediately below the trochanters, and arrested the bleeding from *four divided vessels by as many needles.* Two of the vessels were relieved

from acupressure at the twenty-fourth hour, and the other two—one of them being the femoral artery at its giving off of the profunda branch—at the forty-ninth hour. The swollen glands in the groin suppurated, it would seem, and the pus was partly discharged from the centre of the cicatrix, which formed at the line of union of the flaps, and partly from two incisions made through the recent adhesions by Dr. Todd. Notwithstanding all the unfavourable circumstances of this case, “the line of cicatrisation of the flaps,” to use the words of Dr. Todd, “was healed by first intention,” and in twenty-one days the patient was in excellent health, and had a cast of his stump taken in plaster.

[The amount of force used in tying an artery is not a criterion of the amount required to arrest hemorrhage from its cut orifice; it only shows the amount required to cut through the two internal coats of the vessel. Properly used acupressure is as effectual in arresting hemorrhage as is the application of a ligature.]

But will acupressure prevent *secondary* hemorrhage as effectually as deligation?

The common local causes of secondary hemorrhage in deligation consist of ulceration or sloughing of the arterial walls—either too rapid in point of time, or too great in point of degree—by which the cavity of the artery is opened before the internal plug of blood and fibrine, formed above the ligature, has completely occluded its canal. Mr. John Bell tells us that “secondary hemorrhage arises from ulceration of the artery more frequently than from any other cause.” (“Principles of Surgery,” vol. i., p. 321.) Secondary hemorrhage “may occur (observes Dr. Druitt) from *sloughing* or from *ulceration* of an artery; or from imperfect closure of an artery when a ligature separates.” Or, according to Mr. Syme (“Principles of Surgery,” page 89), “if a ligature has been applied, the ulceration by which it is separated, if too rapid or extensive, may cause a bleeding from three days to as many weeks after the infliction of the injury.”

In every case of deligation there is more or less ulceration and sloughing as an unavoidable consequence of the use of the ligature. It is when one or other, or both, of these processes go to a morbid excess and depth, that secondary hemorrhage from the opened arterial tube follows. But, in acupressure, there is no required ulceration or sloughing at all of the arterial tube; its cavity is obliterated merely by laying its internal surfaces in contact by the pressure of the needle. And hence, secondary hemorrhage as the result of its two common causes—viz., ulceration and sloughing—should be almost or altogether unknown when acupressure is resorted to.

But in the present limited state of our knowledge regarding the mode or mechanism of the occlusion of arteries by acupressure, and the time required for it, acupressure has been followed by secondary hemorrhage in two amputations out of the pretty long list in which the vessels in stumps have been acupressed. These cases and their causes are, therefore, considerations of no small moment. In the first of the two, probably the needle was withdrawn too early, and before the sealing up of the arterial tube was fully accomplished. In the second case, the process of internal closure of the tube by an internal plug and cohesion was probably delayed much beyond the usual time by the state of impaired health and impaired blood of the patient. The first has been reported by Dr. Hamilton in his Carlisle list of cases:

Case 8.—Amputation of the Thigh, with Acupressure and Secondary Hemorrhage.—A boy, aged five and a half years, underwent primary amputation of the thigh, at its lower third, for a railway accident, which had mangled the leg. Twenty-four hours after the amputation, Mr. Page withdrew the only two acupressure needles that had been required, when bleeding immediately occurred to the extent of two ounces. The dressings were at once removed and the stump raised, when the hemorrhage ceased. There was no tension or redness of the flaps. The blood escaped by the opening left by the wires of the acupressure needles. Except at this point, there was union by the first intention along the whole line of incision. For the next two days, the pulse, as on the first day, was high, with vomiting and much tossing. After

a fit of restlessness, hemorrhage recurred from the wound forty-one hours after the withdrawal of the needles. It ceased under manual compression of the femoral and raising of the stump. "Having," says Dr. Hamilton, "adjusted a tourniquet over the vessel high up, I forcibly tore asunder the flaps, which were adherent from end to end, except at the small orifice by which the blood escaped on the 26th: then clearing out some newly-formed clots, exposed the bleeding orifice, which proved to be that of the popliteal. I then passed a needle under it, and secured it in the usual manner. The hemorrhage being completely checked, the flaps were approximated by four points of wire suture. On this occasion it was calculated that between four and five ounces of blood were lost." There was no recurrence of hemorrhage. Sixty-nine hours after the introduction of the needle, it was withdrawn; and within five weeks after the amputation, the wound from it was quite closed and healed.

Perhaps, in this instance, the needles were withdrawn too early—that is, within twenty-four hours after amputation of the thigh. More evidence, however, as I have already argued, and more experience are required on this point before any very fixed principles can be laid down. I will betimes have occasion to speak of a case of thigh-amputation, where the needles were withdrawn in a young child within twenty-four hours, and without bleeding following. In conversation upon the preceding case, Dr. Hamilton informed me that he was inclined greatly to attribute the second attack of hemorrhage to the little patient's great restlessness.

Perhaps I may also be allowed to add here, that in Dr. Hamilton's report of amputations at the Carlisle Hospital, there are given eleven cases where the ligature was used, and eleven where acupressure was employed. Among the latter eleven there was only the preceding case of secondary hemorrhage. Among the former eleven, where the ligature was used, there were four cases of secondary hemorrhage, and two of these were cases of fatal secondary hemorrhage. In other words, there happened in that institution four times more cases of secondary hemorrhage from the ligature than from acupressure.

Case 9.—Amputation of the Thigh—Secondary Hemorrhage after Acupressure.—In the case of a phthisical young man, of twenty years of age, Mr. Crompton performed circular amputation in the lower third of the thigh, on account of severe compound comminuted fracture of both tibia and fibula,—the result of an engine-tender having passed over his leg. The femoral artery was secured by an acupressure needle, and two small muscular arteries were twisted. After seventy hours the stump was in great measure united, but there was still pulsation over the needle near its point of exit. Mr. Crompton, therefore, hesitated about withdrawing the needle, but, as there was considerable inflammation and suppuration in its track, he ventured to remove it. No hemorrhage took place at the time, but two days afterwards Mr. Crompton found four or five ounces of coagulated arterial blood on the bed, and more blood still oozing from the depending part of the incision. He at once reintroduced the acupressure needle a little higher up, and thus arrested the bleeding completely. The hemorrhage was attributed to the patient having made use of the bed-pan about half an hour before. That same day slight symptoms of phlebitis had been noticed. Shivering and vomiting soon followed, and the patient became delirious at times, and died of pyæmia on the tenth day after the operation. On examining the body, "the external iliac," to use Mr. Crompton's words, "and the common and superficial femoral arteries on the right side, were found quite empty, even down to the position of the needle, and the lining coat was of its natural colour, except at the point of pressure, where there was a line of blue discolouration. The external iliac and common and superficial femoral veins were filled with decomposed clots and sero-purulent fluid. This state did not extend into the common iliac vein or the vena cava." The apex of the left lung was "adherent," says Mr. Crompton, "containing several small cavities. Around them, for two or three inches, the tissue of the lung was filled with tubercular matter."

In this patient, it would appear that the internal consolidation and organ-

isation of blood or fibrine necessary for the permanent occlusion of the injured artery had never properly taken place. Whether this deficient action was owing to the previous low state of the young man's health, as testified by the tubercular disease in his lungs, or to the depression resulting from the injury and the operation, or to some other cause, it is not, perhaps, possible to determine. It possibly would have occurred equally with the ligature. But an important lesson in acupressure practice is surely read to us by this interesting case; for, according to the very sagacious observation of Mr. Crompton, the pulsation could be felt going on along the artery down to the very point of compression by the needle; and the lesson, I take it, is this—that so long as the arterial pulsation, in any case, may be felt close to the needle, as can always be done immediately after its insertion, we may regard it in any doubtful case as an indication that imperfect consolidation and permanent occlusion have not yet taken place, and that the time for the withdrawal of the needle has not yet arrived.—*Medical Times and Gazette*, Jan. 2, 9, and 16, 1864, pp. 1, 25, 53.

38.—REMOVAL BY LIGATURE OF LARGE SUBCUTANEOUS NÆVI WITHOUT LOSS OF SKIN.

By J. JARDINE MURRAY, Esq., Honorary Surgeon to the Brighton and Hove Dispensary, and Surgeon to the Brighton and Sussex Eye Infirmary.

Nævi may be divided into three classes—the cutaneous, the subcutaneous, and the mixed; and as each of these requires different treatment, a correct diagnosis is of essential importance. Moreover, the nævi of each class vary so much in structure, form, and position, that no one method of treatment is applicable to all; and, in fact, it is often requisite to use various modes of treatment in the same case.

Although it is probable that the majority of nævi would disappear spontaneously, there is, perhaps, no malformation or disease which is more frequently subjected to operations in children. But in general the friends are too impatient and the surgeon is too zealous to afford nature a chance. In hospital and dispensary practice I have had many of these tumours under my care, and have attentively watched several cases in which they have disappeared without active interference, as the children grew older. In the subcutaneous or arcolar nævus this spontaneous disappearance seems to be less common than in the other varieties; but during the last two years I have been watching with much interest a pure case of subcutaneous nævus of the scalp, in which nature is slowly and painlessly effecting a cure. Doubtless the tumour is undergoing degeneration and absorption; for, from month to month, there is less and less of the soft spongy mass to be felt, and the skin covering the tumour becomes looser. Of late I have abstained from operations, except in those instances in which the nævi continued to increase steadily, or where the impatience of the relatives gave me no alternative.

It is not my present intention to criticise the very numerous expedients which have been suggested for the removal or cure of nævi; but I wish shortly to refer to a plan by which such of these tumours as are entirely subcutaneous may with ease and certainty be cured by ligature, without destruction of skin or production of an unsightly cicatrix. I shall therefore describe a case of this kind, together with the mode of cure; and then state what appear to me to be the advantages of the method of operating which I was led to adopt.

Elizabeth S., a fine child, aged two years, was brought to me in November, 1862. On examination, I found, about an inch and a half above the umbilicus and a little to the left of the linea alba, a large globular swelling, with its long diameter directed upwards. The skin covering the tumour was natural in appearance. When grasped between the fingers and thumb the substance of the swelling felt soft, doughy, and elastic. It appeared that by firm pressure the tumour might be reduced in size; but when the child cried the

swelling became tense and hard, and perhaps also a little darker in colour. Evidently the case was a well-marked example of subcutaneous nævus. I

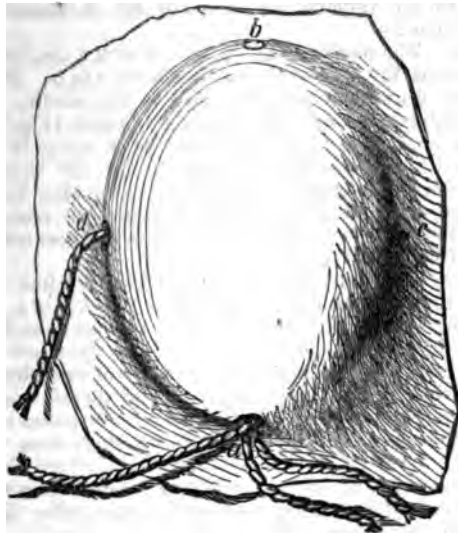


Fig. 1.

Fig. 1 represents a nævus of the subcutaneous variety. The object is to remove the abnormal structure by ligature, without destroying the healthy skin. In this figure all the steps of the operation are supposed to have been performed, except the tightening of the ligature.

directed that a truss, which had been worn, under the mistaken notion that the swelling was an umbilical rupture, should be laid aside. I watched the case during the next three months, and became convinced that the mother had good grounds for her belief that the tumour was really increasing in size; and I therefore yielded to the urgent request of the parents that I should ope-

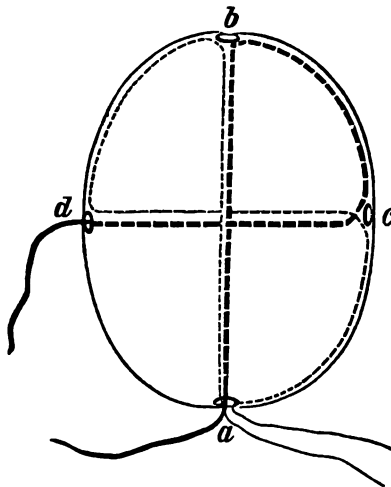


Fig. 2.

Fig. 2.—Diagram to show the mode in which the ligatures include the tumour.

rate for its removal. The size and appearance of the *nævus* at the time of operation are represented in Fig. 1.

On the 19th February, 1863, Mr. H. Philpott administered chloroform to the child, and, with the valuable assistance of Mr. H. Blaker, I operated in the following manner:—

The Operation.—The needle (Fig. 3), armed with a double thread of very strong silk, transfixes the base of the tumour from *a* to *b*. The silk emerges at *b*, and is thence drawn out and cut close to the needle. The left hand thread is then slipped through the eye of the probe (Fig. 4), and carried round the tumour close under the skin from *b* to *d*, where it again emerges. It is now attached to the needle, and passed across the base of the tumour from *d* to *c*. Thence it is again conducted under the skin by the probe, and finally brought out at *a*. It is evident that 2-4ths of the tumour are enclosed by this thread, which, for the sake of clearness, is represented in the diagram (Fig. 2), by the thin dotted line.

The second thread (represented by the dark dotted line in Fig. 2) must now be attached to the probe, and carried under the skin to *c*, and then by the needle through the base of the tumour to *d*. The noose so formed includes the remainder of the tumour, and the thread may be tightened over an incision through the skin from *d* to *a*, made for the purpose of providing an exit for the slough of the *nævus*; or both ends of the second thread may, like the first, be brought out and tied at the point *a*. I am now disposed to think that the incision from *a* to *d* may be dispensed with, for there does not seem to be much difficulty in the separation of the slough, of which the chief portion finds a ready egress with the steady discharge of pus from the apertures in the skin. Whatever of indurated swelling remains, after the separation of the ligatures and the healing of the wounds, is gradually removed by absorption.

Fig. 3.

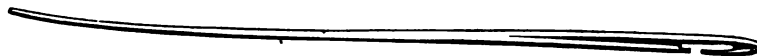
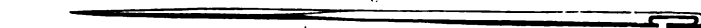


Fig. 4.

Fig. 3.—Needle for carrying the silk through the tumour by transfixing its base.

Fig. 4.—Silver probe for carrying the silk round the circumference of the tumour, close under the skin. To facilitate the threading and unthreading of the needle and probe, each is made with the eye open at the side.

There was hardly any bleeding, as the silk filled the punctures, made by the needle. On tightening the ligatures, the tumor was rendered more prominent and very hard, and the skin was slightly puckered. As on the third day the child was feverish and restless, and the skin red and swollen, poultices were applied. A healthy discharge of pus was soon established. On the tenth day, in order to hasten the separation of the ligatures, which had become loose, a piece of bougie was passed through the loop of each, and the portions of the base of the tumour encircled by the silk were from day to day constricted by torsion. On the fifteenth day the whole of the base of the tumour had been cut through, and both ligatures came away. After this the discharge gradually diminished and the wound healed satisfactorily. The child did not suffer in health or appearance. On examining the little patient on December 21, 1863, ten months afterwards, the tumour was found to be gone, and no trace of the operation could be seen, except a very faint white cicatrix marking the line of incision (*a d*, Fig. 1). It is evident that subcutaneous *nævi* on the face or any other conspicuous part of the body may be cured in the same manner; and as there need not be any destruction of skin, there will be no enlarging cicatrix,—for it is too often forgotten that cicatrices grow.

When I operated as above described, I was not aware that a like method had been previously adopted by any one, but some months afterwards Mr. *Birkett* referred me to the record of a case of subcutaneous *nævus* which

he had endeavoured to cure after a somewhat similar manner. If, when one fancies he has hit on some improvement in medical or surgical practice, he but take the trouble to search the records of our art, he will probably find that his ideas have been anticipated; and indeed it would be surprising if such were not generally the case. Accordingly I find that Professor Pitha, Mr. Curling, and Mr. Adams have each tried a plan resembling that which I have described, but apparently with very uncertain results. I believe that the want of success which attended most of their operations may be attributed to the circumstance that the ligatures were conducted round the nœvus under the skin by a sharp-pointed needle. Now it seems evident that in the attempt to encircle the subcutaneous structure in this manner a portion of the vascular tissue is more likely to escape the ligature than would be the case if a probe were used. For the sharp point of the needle cannot be guided close under the skin without risk of piercing it; whereas the point of the probe can be pressed firmly along the under surface of the skin, so that none of the vascular structure of the nœvus is likely to escape being included in the noose of the ligature. And it is clear that any portion of the vascular tissue may suffice to carry on such an amount of circulation in the tumour as may result in the re-establishment of the disease.

It also appears to me that when the growth is of large size its base can be more thoroughly strangulated by dividing it into four portions, a plan which does not seem to have been hitherto attempted in the treatment of subcutaneous nœvi.

Finally, I may remark that, although the operation which I venture to recommend seems complicated on paper, it is simple in practice. As the needle and probe have each the eye open at the side, the threading and unthreading is accomplished very quickly and easily.—*Lancet*, March 19, 1864, p. 321.

39.—ON A NEW MODE OF ARRESTING VENOUS HEMORRHAGE AFTER AMPUTATION.

By GEORGE H. POSTER, Esq., Examiner in Surgery, Royal College of Surgeons, Ireland, &c.

In amputations, when the circulation has been controlled by pressure with the finger of an assistant, or by some of the more modern tourniquets, such as Signoroni's, Skoy's, or that of Salt, which compress chiefly the main vessels, it is not by any means uncommon for the operator to be annoyed by venous hemorrhage. This can be explained by the fact that, the smaller arterial branches arising above the site of the pressure, carry a considerable quantity of blood to the limb below the point compressed; and the blood is prone to pass from the veins accompanying those arteries into the lower part of the larger ones, and flow from their divided mouths. Generally speaking, this subsides on placing the stump in an elevated position, or by pouring a stream of cold water over it; but, on the other hand, I have frequently seen a surgeon, after all the arteries had been carefully deligated, obliged to keep the cut surface exposed to the air for a long time, with the point of his finger fixed on a vein, before the flow of blood could be checked. Again, I have witnessed such bleeding arrested only by placing a pledget of lint with a string attached, for its removal, on the vessel's mouth. This, independently of retarding, to some extent, the healing process, caused a large amount of suffering on its withdrawal some hours subsequent to the operation; and may also be objected to on the ground that it keeps a supply of pus, putrid blood, or serosity, in constant contact with the orifice, for absorption. Surgeons in this country are not favourable to the practice of ligaturing a vein, although having the sanction of such authorities as Hey, Desault, and Hennen. The dangerous, and sometimes fatal, phlebitis following such procedure, has given us a wholesome dread of tying, or, in any way inflicting injury on these vessels. Again, I should much fear that placing a ligature round both vein and artery—as, for example, the femoral

vein and artery—(Desault) would prevent the cord having the desired effect on the latter, as the vein must hinder it from dividing the internal and middle coats of part of the tube, and thus render the possibility of secondary hemorrhage to be apprehended. It occurred to me that the trouble might be got rid of by the simple contrivance of temporarily grasping the mouth of the vein within the jaws of a very small Dieffenbach's artery forceps, having connected with it a string to take it away when all bleeding had ceased. Its pressure effectually controls the flow of blood; its bulk forms no obstacle to bringing the parts into close approximation; and it can be removed with the greatest ease, almost, indeed, with the same facility that we draw away a ligature. At my request my colleague, Mr. Collis, lately tested the plan with the most marked advantages, in a case of amputation of the thigh, in which bleeding from the femoral vein proved troublesome. My most sanguine expectations were realized by its action, as it instantly sealed the vessel, and so guarded against further hemorrhage and purulent absorption. It inflicted no injury; and, in the case above-mentioned, it was pulled away in forty-eight hours without causing any pain to the patient.—*Dublin Quarterly Journal*, Nov. 1863, p. 268.

40.—ON VARICOSE VEINS.

By FREDERIC C. SKET, Esq., F. R. S., President of the Royal College of Surgeons, and Surgeon to St. Bartholomew's Hospital.

Of cases of varicose veins of the leg every hospital furnishes abundant examples. Whether or not coupled with what is loosely denominated a varicose ulcer, they are often a source of much evil to the subject of them. They are the cause of both weakness and pain. They incapacitate for hard work. But they do not exist alone. Their presence marks a constitution; it is the constitution of debility—a deficiency of power in the acting organs of the circulation. The treatment involves two objects: 1st, the increase of power in these organs; and 2nd, the turning the current of the venous circulation into healthier channels. The first is effected by the liberal administration of nutritive stimulants. The second object has tested the inventive faculties of many surgeons. I leave it to others to commend the various schemes adopted by them. I discountenance, from long observation of its incompetency to cure, the employment of the needle, whether through the vein or under it, single or double. It has these objections: 1st, it is not unattended with danger; and 2nd, it fails to obliterate the vein, except at the point of its application, mainly because the applications cannot be safely made in numbers proportionate to that of the veins affected. I have at present in St. Bartholomew's Hospital a woman under treatment for varicose veins of the leg, whose limb was jeopardized by the employment of the needle a year ago. A long illness, with severe inflammation and extensive abscesses, followed. The same limb is again under treatment for the original disease. There is no danger in making any number of small eschars on the most projecting surfaces of varicose veins, if made with an escharotic composed of two-fifths of pure potash and three-fifths of powdered lime. This powder, well combined, is made into a paste with alcohol. Whether other escharotics are dangerous in their operation on veins I do not stop to inquire; I only know that the Vienna paste, combined as I have above described it, is not. These eschars may be made in any number proportionate to the extent of the disease. I have treated perhaps 250 cases in the course of the last ten years, and I continue to treat them, by the same means. The paste is applied over the most projecting parts of the vein in the following manner; through a series of about four layers of adhesive plaster a circle is cut of the size of a threepenny-piece or smaller. The influence of the escharotic extends through the vein; and it is curious to observe that from the hour of its application the entire vein appears to be obliterated, and is undetectable to the finger on pressure. From ten to twenty-five eschars may be applied between the

ankle and the knee. Twenty minutes suffice for the full operation of the escharotic, and an average of one month for the cure. In very weak constitutions the ulcers will heal very slowly, unless well-directed efforts be made to give force to the general system.—*Lancet*, Jan. 2, 1864, p. 1.

41.—ON THE APPLICATION OF INDICES TO ANEURISMAL CLAMPS AND OTHER PRESSURE INSTRUMENTS.

By ERNEST HART, Esq., Ophthalmic Surgeon to St. Mary's Hospital.

The marked want of success which had attended the use of clamps and tourniquets in this country, as applied for the cure of aneurism, especially popliteal, by indirect pressure on the femoral, had, the author observed, become very evident to him in collecting published cases, and comparing the results in English hospitals with those which had been obtained by the Irish surgeons, who felt for this method of treatment all the interest which parentage could give. It was unnecessary to give figures or details for the purpose which he had in view; and he need only say that the analysis of the unsuccessful cases showed that the greater part had failed through the pain caused by the pressure, the ulceration or sloughing of the skin under the pad, or the extreme tediousness of the process, causing its abandonment as ineffectual, and recourse to the ligature of the main artery. Ligature after compression had failed gave less satisfactory results than primary ligature. In thirty-seven cases treated by English surgeons, in which it had been employed after compression had failed, there were fourteen deaths.

The sloughing, ulceration, and excessive pain, in a large number of the cases which he had mentioned, seemed to him to be the consequences of defective application of the pressure. To maintain continued and graduated pressure upon the femoral artery, even with any of the best compressors, without exerting too much on the one hand, and yet controlling the flow of blood on the other, was by no means easy, and required skilled and constant attention; and a certain amount of loving care was needed to prevent excess or defect. The most usual faults on the part of those entrusted by the hospital surgeon with watching the case were, employing an excess of pressure, or exerting pressure in a wrong direction; so that power was wasted in compressing muscles, and the artery was not fixed against the bone. The surgeon placed the pad carefully in position, but it must presently be relaxed, and then the assistants commonly erred in greater or less degree in re-applying the pressure.

The application of indices to the instruments was likely, the author thought, to obviate much of this difficulty, and to remove some prevalent causes of failure in instrumental compression. The surgeon, on putting the pads in position, could in each case ascertain for himself with what amount of pressure the femoral circulation could be stopped, or slackened, according as he might desire to produce the one or the other effect. Having determined the minimum force by which this could be effected, he could then inform his assistants, and point out to them the limits within which they must keep the pressure. If, in replacing the instrument subsequently, they found that the circulation was not controlled with that degree of pressure, they would know that the pad was not well placed; and instead of screwing down the clamp, and increasing the pressure until the pulsation was stopped, they would be careful to improve the direction of the pressure. It would be very useful for the surgeon himself to know what amount of pressure he was employing to stop the flow of blood; and it would be still more useful for the assistants to have under their eyes a constant monitor as to the correctness and care with which they were carrying out the surgeon's directions.

To give a long table of estimations of the degree of pressure in different subjects would not, the author thought, serve any useful purpose, as this would need to be ascertained for each particular case at the commencement of the treatment. He might, however, just select the three following from

his notes of the results of experiment on this point, as giving average figures for three typical subjects:—

A. D., adult male, 5 ft. 7 in. high, somewhat emaciated after illness; measuring (at the level of the perineum) round the thigh 15 in., above the knee 12 in. Pulsation arrested at apex of Scarpa's triangle by a pressure of 7 lbs.; at Hunter's canal by a pressure of 8 lbs.

J. R., adult male, 5 ft. 6 in. high, robust and powerful; measuring (at the level of the perineum) round the thigh 22 in., above the knee 14½ in. Pulsation arrested at apex of Scarpa's triangle by a pressure of 11 lbs.; at Hunter's canal by a pressure of 14 lbs.

A. N., adult male, 5 ft. 4 in. high, of slight and feminine build; measuring round the thigh at the level of the perineum 20 in., above the knee 12½ in. Pulsation of femoral arrested at fold of groin by a pressure of 4 lbs.; at apex of Scarpa's triangle, by 10 lbs.; at Hunter's canal, by 11 lbs.

In the instrument made under the author's direction, by Messrs. Whicker and Blaise, and which he offered for inspection, the pressure is registered by a needle on a scale, and it is effected by a strong spring, which affords a pressure capable of nice graduation from four to twenty pounds. This instrument had already been tested in practice, and had worked well. Mr. Hart owed to the kindness of the Director-General of the Army Medical Department the report of a case in which it answered expectation in curing a popliteal aneurism. The analysis of cases showed that elastic pressure was best borne.

The principle involved in the application of indices seemed to the author not unworthy the attention of the society, for it was obviously one which might be applied with advantage to other instruments of pressure and extension in surgery; and on the table would be seen an index of a similar kind applied to pulleys for reducing dislocations. It might be useful to apply them to apparatus for overcoming fibrous ankylosis, and restoring bent and deformed limbs.—*Lancet*, Dec. 19, 1863, p. 704.

42.—A CASE IN WHICH ANEURISM OF THE ASCENDING AORTA WAS TREATED BY THE INSERTION OF WIRE.

By CHARLES H. MOORE, Esq., Surgeon to, and Dr. CHARLES MURCHISON, Assistant Physician to, the Middlesex Hospital.

[The following is an abstract of a paper read before the Royal Medical and Chirurgical Society. The theory of the operation was first described by Mr. Moore. Dr. Murchison furnished the report of the case with medical comments upon it. For the surgical remarks Mr. Moore was alone responsible.]

In February, 1863, Mr. Moore had been led to review the conditions of such aneurisms as could not be surgically treated through the artery, and had devised a method of producing consolidation of them in accordance with the mode of their natural cure.

The principles involved in this method were—1, that large aneurisms can only be benefited by the deposition of fibrin within them; 2, that the natural means of obtaining fibrin from the blood are inadequate, because it can only settle in layers on the wall; 3, that in the central part of an aneurism there is a large quantity of blood with fibrin ready to collect on any apt material; 4, that fibrin may be elicited from arterial blood by exposing a foreign body in it. Two cases were quoted in which this had occurred; one, an instance in which gangrene of the leg had resulted from plugging of the arteries by fibrin detached from a needle in the left ventricle; the other, that of a sailor, who died three days after being shot, and in the interior of whose ascending aorta was a bullet imbedded in fibrin.

The foreign body which, according to our present knowledge, would produce least irritation was wire. If a large quantity were coiled in an aneurism, it would attract fibrin, as the twigs do in freshly whipping drawn blood, support the mass which it entangled, and lead to the cavity of the aneurism being

eventually filled. The wire might be passed in through a small canula, with care not to leave the last end in the minute wound, and not to direct a coil into the orifice of the artery.

Only a sacculated aneurism could be so treated, not one which had two orifices, since fragments of fibrin would be broken off by the force of the current. Brasdor's operation might be previously required in some parts. This danger might be incurred in a sacculated aneurism also, if wire enough were not introduced, because of the large intervals which would be left between the few coils of wire. The wire would remain in the solidified aneurism, and be harmless.

Mr. Moore then described the operation by which the foregoing proposal might be carried out.

Report of a case of Saccular Aneurism of the Ascending Aorta projecting through the Anterior Wall of the Left Side of the Chest.—Daniel D., aged twenty-seven, became a patient at the Middlesex Hospital, under Dr. Murchison, on Nov. 10th, 1863. Eight years before, he began to suffer from palpitations and dyspnoea, and after some months he had an attack of hemoptysis. The hemoptysis recurred at intervals, and in Nov. 1862 he first noticed a pulsating swelling in front of the chest, to the left of the sternum. This increased with considerable rapidity, and the patient now became subject to severe attacks of angina pectoris. At the time he first came under observation, the tumour was situated in the angle formed by the left clavicle and the left margin of the sternum; it measured 10 inches in circumference at its base, and projected about 2 inches from the wall of the chest; its surface was rounded and tolerably uniform, except at the upper part, where there was a tendency to point. Over the whole surface of the tumour distinct pulsation could be felt, each beat corresponding to the impulse of the heart. Nothing resembling an aneurismal bellows-murmur could be heard; but both cardiac sounds, and particularly the second, were louder over the tumour than at the base of the heart. There was dulness on percussion to the right of the tumour, over a space measuring 2 inches transversely, and 3 inches from above downwards. The apex of the heart could be felt beating between the fifth and sixth ribs. The cardiac dulness was slightly increased, but the sounds heard on auscultation were normal. There was no inequality of the arterial pulse on the two sides of the body. The voice was normal. The patient had an occasional cough, and expectorated a viscid mucous-purulent matter, but there was nothing peculiar in the character of the cough. Over the whole of the left side of the chest there was comparative dulness on percussion, with coarse, at some places tubular, breathing, and subcrepitant râle. On the right side of the chest the percussion was clear and the breathing puerile. The appetite and digestion were good, and the bowels regular. There was no dysphagia, and no pain or tenderness at any part of the spine. The pupils were of normal and equal size. On Nov. 20th, and again on Dec. 28th, the urine was ascertained to be free from albumen.

[After the patient was admitted into the hospital on the 20th of November, the attacks of angina almost ceased, yet the tumour continued gradually to increase. The integuments became of a dusky red colour, and by the early part of January it became obvious that the bursting of the aneurism could not be long delayed. With the patient's consent he was accordingly submitted to Mr. Moore's operation.]

The operation consisted in the introduction of a quantity of fine iron wire into the aneurism, with the object of inducing coagulation. A small pointed canula was inserted into the tumour, and the wire was passed in through this without difficulty. The operation occupied one hour, and the quantity of wire introduced was twenty-six yards. It gave rise to no pain or inconvenience excepting a slight and transient feeling of faintness. The quantity of blood lost did not exceed half a fluid ounce.

The immediate effects of the operation were a reduction of the pulse from 116 to 92, an almost complete cessation of the pulsation in the tumour, and a diminution in its size. Immediately before the operation, the circumference of its base was 16½ in.; at the close of the operation it was 16 in.

These changes began to be noticed soon after the commencement of the operation, and became more marked as it was proceeded with. At a quarter past eleven p. m. the patient was asleep, and his pulse was only 78. He slept comfortably during the night, and had no bad symptom until the following morning.

On Jan. 8th, at nine a.m., the patient was seized with a fit of rigors lasting three quarters of an hour, and followed by great pain in the back of the neck and some pain in the tumour. At one p.m. the pulse had risen to 144, and was full and bounding. The action of the heart was tumultuous, and all the arteries of the body could be felt throbbing with considerable force, but there was no difference in the force or volume of the beat on the two sides of the body. The patient complained of great pain in the tumour when he moved. The tumour was already somewhat larger than before the operation, and the dusky discolouration was of a deeper tint. There was intense thirst and great restlessness; the skin was dry and very hot; and the respirations were 40. At twenty minutes past one p.m. the patient was bled to the extent of eighteen ounces, and at half-past three p.m. twelve ounces more blood were abstracted. After the second bleeding twenty minims of Battley's sedative solution were administered.

From these measures the patient derived temporary relief, but he had a restless night, and at half-past six a.m. of the following morning (Jan. 9th) he had a second attack of rigors. At one p.m. he had a third attack. At half-past one he was in great distress, owing to pain in the tumour and at the back of the neck. The tumour was extremely tense and decidedly tender, particularly at its upper part. Its circumference at the base measured $1\frac{1}{2}$ in. more than before the operation. Distinct pulsation could be felt again at its upper part. The pulse was 136 and soft; the action of the heart was less tumultuous, and there was no abnormal cardiac sound. Large and repeated doses of opium and digitalis were now commenced. At half-past ten p.m. the pulse had fallen to 126, but the patient complained of being afraid to cough on account of a severe jerking pain in the tumour, which the effort to do so always induced.

On Jan. 10th, at ten p.m., the patient had taken seventy-three minims of tincture of digitalis, and the equivalent of almost ten grains of opium, during the preceding twenty-one hours, and the result was, that he was in less pain, the pulse had fallen to 104, and the tumour was slightly reduced in size, its circumference being half an inch less than on the preceding day. At half-past seven p.m., however, he was seized with a severe burning pain in the tumour, and a feeling of tightness as if it were going to burst. The tumour was larger and more tense than ever; the pulse rose to 132; the heart's action was again more impulsive, and there was intense thirst. To-day it was noted for the first time that the pulses in the right temporal and radial arteries were slightly fuller than in the corresponding vessels on the left side.

Opium in large and repeated doses, along with digitalis, was persisted with. In the course of two days and a half (commencing on Jan. 9th) as much as the equivalent of twenty-seven grains of opium was administered. The treatment, however, failed to give relief. The tumour increased rapidly in size, and on the 11th distinct pulsation could be felt at several parts of its surface. The radial pulse was 128, small and compressible, and still fuller on the right side. The beat of the right anterior tibial artery was also decidedly fuller and stronger than that of the left. The cardiac impulse was extremely feeble. The respirations were performed chiefly by the diaphragm and the muscles on the right side of the chest; the left side of the chest was almost motionless. The whole of the left side of the chest in front, unoccupied by the tumour, was dull on percussion, and no respiratory sound could be heard on this side, except immediately below the clavicle. Brandy and other stimulants were now given, but without any decided result.

On the morning of the 12th the patient was evidently sinking. The pulse was about 136, but was so weak as to be counted with difficulty. The circumference of the tumour at its base was now $3\frac{1}{4}$ inches more than before the oper-

ation, and urine passed during the night was found to be loaded with albumen. At eleven a.m., four days and twenty hours and a half after the operation, the man died.

An autopsy was performed a few hours after death. The walls of the external tumour were formed by the integuments and fibres of the pectoral muscle, infiltrated with serum. They were nowhere less than a quarter of an inch in thickness. The skin covering a great part of the tumour presented a deep livid hue. The interior of the tumour was filled, for the most part, with a fibrinous coagulum, enveloping and imbedded in the coils of wire, and firmly adherent to the surrounding walls. The rest of the cavity contained fluid black blood. The interior of the outer tumour was nowhere lined with a prolongation of the arterial coats; but it communicated with the proper aneurismal sac within the chest by two large openings in the first and second left intercostal spaces, the intervening rib being bare and eroded, and at one place broken through. The aneurismal tumour within the chest was about the size of a man's fist. It lay immediately behind the sternum; it encroached slightly upon the upper lobe of the left lung, and inferiorly it rested upon the right auricle. It was partially filled with a fibrinous coagulum, which was continuous with that in the outer tumour, and was adherent at one part over a space measuring about one-third of an inch in diameter. It communicated by a circular opening, scarcely so large as a sixpence, with the ascending aorta. Through this opening a clot projected from the aneurism into the vessel, and extended downwards into the heart, and upwards into the arch. The greater part of this clot was evidently of post-mortem date; but part of it, close to the opening, was pale, firm, and laminated. There was considerable atheroma of the coats of the thoracic aorta. The pericardium contained about eight ounces of turbid serum, and its opposed surfaces were coated with a thin layer of recent lymph. The upper part of the parietal pericardium presented a patch of livid discolouration, about the size of a florin; and at the centre of this patch the cavity of the pericardium was merely separated from that of the aneurism by a delicate membrane. It was at this part of the aneurism that the coagulum was adherent. The heart was slightly hypertrophied. Its valves and muscular tissue, and likewise the coronary arteries, were healthy. The left lung was everywhere firmly adherent, and its pleura much thickened. On section, numerous cavities were observed, evidently resulting from dilatations of the bronchial tubes. In the intervening spaces a firm fibrous tissue took the place of the normal vesicular structure. The right lung was for the most part healthy. Both kidneys contained a number of circumscribed abscesses, varying in size up to that of a small pea. A cluster of six of these small abscesses was found at the apex of the left kidney. In the cortical substance of both kidneys a number of patches of yellowish deposit of a large size, but less defined outline, were also observed. On microscopical examination, this appearance appeared to be due to the presence of a granular exudation deposited between the uriniferous tubes. The liver was large and fatty. The other parts of the body could not be examined.

After recording the history and post-mortem appearances of the case, Dr. Murchison enumerated some of the more important features of clinical interest, independent of the operation, which it presented.

In his concluding remarks, Mr. Moore referred first to the circumstances of the operation, and to its early effects, which were highly satisfactory. So much fibrin appeared to have collected at the end of an hour that the pulsation of the tumour and its sharp second stroke were no longer perceptible; the aneurism had much diminished in size; the pulse, which, notwithstanding medicines, had beat 112 for weeks previously, and was 120 before the operation, had fallen to 92, and at night was about 80. This unlooked-for abundance of the fibrin, accumulated not by an inflammatory, but by a mechanical process, was an unprecedented circumstance. Its effects could not be foretold. It appeared to have caused local inflammation and the rigors, with great acceleration of the pulse. No aneurism could long resist such a pulse. Death had probably resulted from

acute pericarditis, which was induced, not by continuity with the inflammation outside the chest, since neither the inner aneurism nor the pleuræ were inflamed, but incidentally by the imminent bursting of the intro-thoracic aneurism into the pericardium. No fragments of the clot of fibrin, large enough to be detected by the naked eye, had been detached, but microscopic portions were supposed to have existed in the kidneys. Neither the old nor the recent disease of the kidneys had actually caused death, which was due to the changes about the chest, and was, through the pericarditis, an indirect and not inevitable consequence of the operation. No coil of wire had passed through the opening of the aneurism.

Three facts appeared to Mr. Moore to justify a repetition of the operation, or of some modification of it:—1. The separation of fibrin upon the foreign body, and its rapid deposition. 2. The exemption of the inner aneurism from inflammation, probably to be accounted for by its possessing a lining membrane, which the outer cavity had not. 3. The firm adhesion of the clot to the wall.

Not having yet thought of a more suitable foreign body than wire, he had but two modifications of the operation to suggest; 1. The introduction of a smaller quantity. The objections to this had already been pointed out. 2. The use of slender needles as temporary means of procuring the consolidation of the fibrin. The safety of this must depend on the number of needles which might be inserted, the gentleness with which they should be withdrawn, and the period at which fibrin so procured should acquire a sufficiently firm attachment to the wall of the aneurism to allow of the artificial support of the needles being dispensed with.—*Lancet*, April 2, 1864, p. 383.

43.—ON A CASE OF SPONTANEOUS THROMBOSIS IN THE LEFT FEMORAL AND SAPHENA VEIN.

By Dr. H. M. TUCKWELL, late Radcliffe Travelling Fellow, Oxon.

[The patient was thirty-three years of age, had enjoyed previous good health, but had for some time been over-worked.]

His present illness commenced about a month ago with severe pain in the head, which lasted five or six days without intermission, and left him much weakened. The pain then shifted to the loins, and continued there for two weeks, during which time he was extremely depressed and unable to get about. At the end of this time, rather more than a week ago, he was attacked suddenly in the night by a violent pain in the right side, which seems to have been purely neuralgic, for no signs of pleurisy could be detected at the time; this pain continued for three days and nights, during which time *he lay continually on the left side*, without sleep, and taking no food, till, on the fourth day, it left him almost as suddenly as it had come on. On attempting now to change his posture he found that the left leg was quite numb, that sensation began to return after rubbing the leg for a time, but that, with returning sensation, there came on an intense pain in the lower part of the leg, more especially in the calf; that he soon observed the leg and foot beginning to swell; that the swelling gradually involved the whole leg and extended up the thigh to the groin, the pain becoming generally diffused and intensified as the swelling extended and increased. I saw him on the fourth day after the swelling had commenced, when the following appearance presented itself:—

He is extremely prostrate, unable to raise himself in bed; the eyes hollow; the voice low and changed; skin generally cool, except that of the left leg, which is abnormally hot; pulse 60, very small, thready and irregular, intermitting at every third beat; thorax generally resonant on percussion; respiration feeble, but free from any morbid sound; urine natural. The left leg, from the groin to the toes, is enormously swollen, pitting everywhere deeply on pressure, its surface is hot and very sensitive; an indistinct hardness can be felt through the cedema along the course of the femoral and saphena vein

as far as Poupart's ligament, above which point it cannot be traced; beneath the œdematous integuments large superficial veins are seen ramifying along the anterior and outer aspect of the thigh.

Diagnosis.—Thrombosis of saphena and femoral, perhaps of external iliac vein.

Treatment.—To relieve the pain, cold was applied to the whole limb in the form of evaporating lotions, and the limb was supported on pillows. Small quantities of brandy and wine were administered, with milk and beef-tea.

On the day following, Mr. Savory saw the case with me, and gave me the benefit of his valuable opinion. He fully concurred in the diagnosis, but advised that the leg should be wrapped in cotton-wool, and pressed upon me most forcibly the necessity of increasing the quantity of stimulants, bidding me, to use his own words, "measure the quantity not by the glass or bottle, but by the effect produced." From this time, brandy, rum, port, sherry, and champagne were given every two or three hours day and night, till, on the sixth day from the time that I first saw him, he was taking, in the twenty-four hours, brandy, $\frac{3}{4}$ xij.; rum, $\frac{3}{4}$ xij.; wine, $\frac{3}{4}$ xx. The effect of this on the pulse was as follows:—It rose from 60 to 94, the intermissions at the same time becoming less frequent, and the volume better and better, till, on the tenth day from the time that the stimulants were first given, and while he was still taking above quantity, it fell to 84, and ceased to intermit. His general condition improved, *pari passu*, with the pulse. At the request of the patient, I returned to the cold applications, after having made fair trial of the cotton-wool, and found that it made the leg uncomfortable, while the cold relieved the pain in a marked degree. On the twelfth day, the pain having quite subsided, while the swelling remained unchanged, the leg was carefully rolled in flannel bandages, moderate pressure being at first employed and gradually increased, and it was swung from a fracture cradle with the foot slightly raised. This was continued during a period of seven weeks, at the end of which time the swelling had entirely disappeared. It may be remarked, that the œdema subsided rapidly for the first week after the application of the bandage, but then seemed, for a time, to remain stationary, and was at last slowly removed. The quantity of stimulants was gradually reduced after the fourth week.

He has now recovered his health, can walk two or three miles in the day, but still finds, after a walk, that the leg and foot feel heavy, and that the veins in the foot become in spite of a lace-socking, considerably distended. There is now nothing abnormal to be felt or seen in the thigh in the region of the large veins, nor is there any visible enlargement of the superficial veins there.

Remarks.—The occurrence of spontaneous coagulation in the living veins, simply as a result of nervous debility, independently of the puerperal state, of fever, or of any wasting organic disease, as phthisis, cancer, &c., is, seemingly, a rare phenomenon. On reading, through Virchow's masterly paper on the subject, I cannot find, among the many cases of thrombosis there enumerated, one exactly similar; nor is there in Cohn's monograph one case in which there was not either some organic disease or fever to account for the coagulation. Not that I wish to instance this case as one whose pathology is distinct or special, for the so-called "Marantischer Thrombus" of the Germans, or clot that forms in wasting diseases, is, as Virchow has shown, dependent primarily on the same cause,—an enfeebled state of the heart's action; but the disease here presents peculiar interest, in that there was an absence of any dyscrasia or fever which might be supposed to give rise to the formation of a thrombus by altering the composition of the blood; it shows that to a feeble heart alone may be attributed all the symptoms and signs of the worst form of "phlegmasia dolens." It may be urged by some, in contradiction of this assertion, that phlebitis was here the real cause of the coagulation; but a careful observation of the way in which the disease showed itself seems to me to afford convincing evidence that no phlebitis whatever was present, and thus to confirm still further the

doctrines of Virchow. The rapid development and extent of the swelling certainly point to a primary obstruction of the main venous trunk in the thigh. Now, if this obstruction had been due to phlebitis, surely the first symptoms of pain and swelling would have been noticed in the immediate neighborhood of that venous trunk, whereas nothing of the kind was observed. The swelling and pain commenced in the leg and foot, and extended, last of all, to the thigh; nor was there at any time marked pain, along the course of the obstructed vein, distinct from that felt all over the leg. Besides, the general symptoms were not those of an acute inflammatory process; the skin of the body, generally, was cool, and the pulse quite unlike that of inflammation. The conversion of the saphena and femoral vein into a solid tube by coagulation of their contents, is quite sufficient to account for the hardness felt along their course.

John Davy and Gulliver were the first to notice the frequent occurrence of clots of this kind in the veins of those who had suffered from chronic diseases, with failing circulation and great prostration of the vital powers. After them, Hasse and Bouchut turned the attention of pathologists still further in this direction. But to Virchow must be awarded the largest share of praise, for he it was who first cleared away the mists which enveloped the whole subject; he showed, by repeated experiments and post-mortem examinations, that the doctrine of phlebitis, first promulgated by John Hunter, is erroneous; that the coagulation is not preceded by inflammation of the vein, and that there is no exudation on the free surface of its inner coat which determines coagulation; but that, through failure of the heart's power, the blood current is retarded and finally stagnates, and that the starting-point for coagulation is at the point of junction of the valve with the wall of the vein, the valve here (like the chordæ tendinæ in the heart) acting as a foreign body, and furnishing a centre round which the stagnant blood coagulates.

It is worthy of notice that, in circumstances predisposing to thrombus formation, a long continuance in one posture seems to favor the occurrence of the phenomenon, and that the side to which the patient inclines is often the side on which the clot forms. Virchow dwells upon this, and relates cases which corroborate the statement. Cohn has observed the same; he mentions one case in particular—a case of Bright's disease with effusion into the right pleura—where the patient lay continually on the right side and right arm, and where the whole right arm became œdematous from the formation of a thrombus found after death in the subclavian vein.

The contingencies to be feared in these cases are, first, that the heart may not be able to recover itself, and that death by asthenia may follow rapidly; secondly, that erysipelas may set in, followed by diffuse abscess, or even gangrene; thirdly, that a portion of the clot may be detached and washed into the pulmonary artery, causing sudden death; fourthly, that the clot may undergo the so-called retrograde metamorphosis, may soften and break down in its interior, and that this softened, ill-conditioned fibrine may be carried into the general circulation, and cause death from pyæmia. The heart must regain its lost power, and the clot must undergo a healthy process of organization, before anything like a favourable prognosis can be given.

The question then arises as to how the circulation is re-established; the answer to which is, by the formation of collateral channels, if the vein be completely obliterated by the organised clot. But it may also happen that the canal of the obstructed vein may in part reopen; that the clot during the process of organisation, may shrink away from one wall of the vein as it becomes adherent to the other; and that the blood may flow on again in its original channel, now of necessity much narrowed by the changes that have taken place. It is probable that the latter has occurred in the case related, from the fact that there are no large superficial veins visible.

The circumstances of principal interest in the treatment employed are, the beneficial effect of cold, the value of pressure, and the necessity of *stimulants*.

The application of cold—a remedial agent so largely employed in Germany—is strongly recommended by Virchow as the best and often the only means of alleviating the terrible pain that follows the sudden obstruction by an embolus of one of the large arteries of the extremities. The relief it afforded in this case was most marked. Pressure carefully applied and gradually increased by means of a flannel bandage—a plan of treatment employed by many obstetric physicians in the later stages of the puerperal phlegmasia dolens—was here, too, attended with good results. The rapid and manifest improvement in the general condition of the patient, and the restoration of the heart's power in proportion as the quantity of stimulants was increased, sufficiently indicate their importance in the treatment of such cases. And, surely, if alcohol acts thus beneficially after the mischief has been done, we cannot avoid the reflection, that the free use of alcohol in wasting diseases may often avert the mischief altogether, and that the stimulant plan of treatment has, at any rate, this much to be said in its favour, that it tends to prevent the formation of thrombi. In the history of this disease we have, certainly, one satisfactory example of the way in which a real advance in pathology leads to a corresponding advance in therapeutics.—*Medical Times and Gazette*, Feb. 13, 1864, p. 170.

ORGANS OF RESPIRATION.

44.—ON THE IMPORTANCE OF EXCISING A SMALL PORTION OF THE WINDPIPE IN THE OPERATION OF TRACHEOTOMY.

By GEORGE H. PORTER, Esq., M. B., T. C. D., Examiner in Surgery, Royal College of Surgeons, Ireland.

[In many cases of tracheotomy a tube cannot be endured from the amount of irritation it occasions. It is in these cases that Mr. Porter advises the excision of a small portion of the trachea. A longitudinal incision of about half an inch must be made in the middle of the trachea, and a thin slip of the tube removed, leaving an opening about equal in size to the natural one.]

The late Mr. Carnichael strongly advised the excision of a diamond-shaped portion of the trachea, as forming a free exit to viscid phlegm, generally present in those cases, and at the same time objects to the canula, on the ground that "it excites intolerable irritation, with violent fits of coughing." Pelletan, and many others, condemned the canula as being insupportable to the patient, and adding to the irritation. I cannot, however, go the entire length with those who would assert that this appliance usually produces a large amount of distress. I have frequently employed it myself successfully, and seen it introduced by others with the most happy results: but, on the other hand, I have certainly witnessed instances where its presence could not be endured for a moment. I have notes of two cases in which I performed tracheotomy—one, that of a girl, aged sixteen years, labouring under acute laryngitis; the second, where a man of forty-three suffered from syphilitic ulceration of the larynx. In neither of these cases could the tube be borne, even for an instant—a fact which, at the time, impressed me very strongly with the necessity of cutting out a small piece of the windpipe instead of making a mere linear incision. I shall not, however, dwell upon this point, as my object is not to discuss the propriety of using or not using a canula. I am perfectly aware that it cannot be dispensed with in many cases, and therefore it should always be at hand when we are obliged to open the trachea.

With regard, however, to the main object of this paper, let me not for a moment be considered as condemning the practice of others, but merely as endeavouring to impress on the operating surgeon that which I deem a most important feature in tracheotomy, and which I myself have found to possess surpassing advantages. In a word, I believe it to be of great importance that a portion of the tube should be excised, though I am quite aware this course has

not been generally sanctioned. I do not presume to put this forward as any original conception of my own, for, among those in favour of such a plan of opening the windpipe in certain cases, I may mention my late father, as stated in his work on the larynx and trachea, published in 1826; Professor Hargrave, who also recommends such a procedure (*Operative Surgery*, 1831); Ryland, who advises it under special circumstances; Mr. Fergusson, who says:—"If the opening has been made to allow the patient to breathe more freely, it will be necessary to make some provision to keep it patent. Some portions of its margins may be cut away with this object." Mr. Lawrence and the late Mr. Carmichael (as before quoted), practised this same method. The advantages arising from the excision of a portion of the trachea may be briefly detailed. In the first place, I consider, that it allows an easier introduction of the canula than when it is inserted through the mere incision. Secondly—it favours a more free escape of mucus, flakes of lymph, or blood, from the interior of the windpipe, which is a most important result to be aimed at. Thirdly—when the canula is introduced, through an opening of its own size, and which it fits accurately, there is not the same likelihood of blood passing into the trachea as there would be in the case of a slit. The slit, when its edges are separated by the canula, must leave a triangular opening above and below the instrument. Fourthly—in cases where the presence of the canula cannot be tolerated, from the irritation it gives rise to, it can be well understood that such an opening is absolutely essential to permit free respiration. Fifthly—should tracheotomy be performed for the removal of a foreign body, it will be quite apparent that the aperture made by cutting out a portion of the windpipe would give a much greater facility for the introduction of instruments to accomplish its dislodgement. Sixthly—if a canula be placed in the trachea it would be much more likely to remain in its proper position when fixed in an opening which approximated to its own size and shape than if inserted through such a slit as that objected to. Seventhly, and lastly—in cases of suspended animation the free opening made by the removal of a piece of the windpipe, would allow the application of the nozzle of a bellows, or the passage of a suitable tube, much more easily than a simple incision.

But in carrying out the proposed method it is possible to run into an opposite extreme, and thereby commit a grievous error: for we may cut out too much of the tube, and thereby expose the patient to serious suffering. And hence, as previously admitted, objections have been raised to it. Ryland, in his admirable work on the Diseases of the Larynx, thus alludes to it in disparaging terms:—"The removal," he says, "of a portion of the front of the trachea is by no means unattended with inconvenience. For, in the first place, when the operation is performed at the lower part of the neck, the distance between the surface of the integuments and the trachea is so great, that it becomes a matter of considerable difficulty to cut away an elliptical portion of the tube.

"The difficulty amounts almost to an impossibility when the integuments are much tumefied either by emphysema or by serous or purulent infiltration. This step of the operation is, however, greatly facilitated by drawing forward the trachea by means of a hook inserted underneath one of its cartilaginous rings. In the second place, the removal of a portion of the front of the windpipe, especially in children, may probably occasion a narrowing of the tube at this part to such an extent as subsequently to interfere with the functions of the organ. The area of the tube is, in the natural condition of the parts, preserved by the cartilaginous rings, which counteract the disposition of the muscular bands at the back to diminish its calibre. But when the centre of two or three of the rings is removed to any extent, the action of the muscular fibres remains uncontrolled, and the trachea becomes, in consequence, very much narrowed."

The late Mr. Liston, on the same grounds, was unfavourable to the removal of any of the windpipe, and expressed his opinion as follows:—"It has been proposed to remove an oval portion of the tube. This is a difficult matter, does not answer the purpose long, and is apt to be followed, after

the healing of the wound, by inconvenience and dangerous narrowing of the trachea."

Now, respecting the first objection urged by both authors, I find it hard to understand it, particularly as stated by the latter surgeon, who was universally acknowledged, in his day, to have been a most expert and daring operator. I should have thought that the man capable of passing a catheter with *one* hand could as easily cut out a piece of trachea (properly bared) as make an incision in its centre line. I can fully understand the validity of the latter objection if too large a portion happened to be taken away, especially in the case of a child. In any operation, however, the surgeon may use his knife too freely, as well as in this; but why argue from the abuse against the proper amount of excision? I have never witnessed an instance of this dreaded narrowing of the windpipe when tracheotomy was performed in the manner which I do not hesitate to recommend. In the case of a young girl I cut out a larger portion than I intended, and she perfectly recovered, and is now in the enjoyment of the best health, after a lapse of nine years, never having suffered for a moment during that period from any laryngeal affection. I may here, also, give the experience of Mr. Wells on this subject, as set forth in his excellent article on "Bronchotomy" in *The Cyclopædia of Practical Surgery*. He says:—"As to the danger of narrowing, I have not read of any cases supporting this view. On the other hand, I have, of many, where a portion was removed, and the aperture is said to have been filled with a ligamentous substance, and no narrowing occurred."

Some very ingenious instruments have been invented and suggested to the profession for making an opening in the trachea; and one for cutting out a piece from the front of this tube. Among the former I may mention that of M. Gerson, of Hamburg; Thompson's Tracheotome; the forceps of Garin; Edwards' Hook; and the Trochar and Canula. This last-named instrument is a most useful one in cases where bleeding occurs, and which will not admit of delay in opening the air-tube. But there is one great disadvantage attending it; namely, if the canula, on the withdrawal of the trochar, produces the violent irritation sometimes seen, its removal becomes imperative; and then, instead of leaving a circular or oval patulous wound, it is found triangular, with closing flaps, which afterwards prove troublesome. There is only one instrument that I am aware of for *cutting out* the portion of the trachea. Its invention is claimed both by Mr. Milliken, formerly of Dublin, now resident in London, and by Dr. Marshall Hall. It is very ingenious, and cuts out the piece by a rotary motion when fixed in the trachea, by means of a screw. I have never seen it used; but I am of opinion that the motion of the windpipe, and the fact of the cutting edges being applied to a convex surface instead of a plane one, must render its operation more or less tedious. The best mode of proceeding, in my judgment, is, to remove a circular portion with the knife, adapting it as nearly as possible to the size of the canula; and, although in some instances the operator may not be successful in attaining the precise size he desires, yet, in general, he will be enabled to perform the operation sufficiently exact to secure all the objects desired. The form of knife that I have several times used and recommended for this purpose, I first saw employed by my father. It is a sharp-pointed "tenotome," with a narrow but strong blade. Having fixed the trachea by catching it with a hook, the knife is carried round the portion of windpipe, firmly held forward, and a piece excised. Thus an opening is formed which freely admits the introduction of a canula, if required; but, on the other hand, should its presence not be tolerated, an ample aperture is left for the uninterrupted admission of air.—*Dublin Quarterly Journal*. Feb. 1864, p. 6.

ALIMENTARY CANAL.

45.—ON SYME'S OPERATION FOR THE RADICAL CURE OF REDUCIBLE HERNIA.

By GEORGE H. PORTER, Esq., Examiner in Surgery, Royal College of Surgeons, Ireland.

When Professor Wutzer, of Bonn, suggested his operation for the radical cure of hernia it promised fairly to fulfil all requirements. Surgeons hailed it as one of the great *desiderata* in their art, and hoped that a remedy had at last been found to enable them to dispense with the galling truss. Now, we must remember that in any operative measure for the permanent cure of a rupture, the obliteration of the sac should be effected, as well as the contraction of the hernial aperture. Wutzer's apparatus certainly accomplishes much towards the desired end, by inserting a plug of skin and other textures to fill the deficiency in the abdominal walls, and thus prevent the escape of intestine. The operation is not painful, and is comparatively without danger to the patients; but, although one of the best plans, it may be objected to on some grounds. In recent ruptures, for example, when the opening is not large, the insertion of the wooden cylinder is calculated to widen the ring, and thus, by tearing asunder the parts, to produce the very result which is intended to be obviated. I am not now, however, about to discuss the merits of operations performed for this purpose, some of them proposed and executed by surgeons of the highest ability; but I merely wish to give my own experience of one which was simple in its performance and most happy in its consequences. I allude to that recommended by Mr. Syme in his *Observations in Clinical Surgery*.

On the 21st May, 1863, a man, aged thirty-five years, a carpenter by trade, was admitted under my care into the Meath Hospital, with a reducible oblique inguinal hernia on the right side, of which he had become the subject, three months previously, whilst lifting a weighty piece of timber. The tumour was not large, nor had it passed beyond the external ring. He suffered pain in coughing, sneezing, or when he made any unusual exertion at his trade. He was at first quite ignorant of the nature of his malady; but, when informed that it was a rupture, he begged that anything might be done which would secure him from the annoyance of wearing a truss, of the discomfort of which he had often heard people speak. Considering his age, good state of health, the small size of the tumour, and the length of time he was suffering from the disease, I regarded it as a favourable case, of which a radical cure might be attempted. Before describing the operation, I cannot do better perhaps, than quote from Mr. Syme's work respecting the instruments and appliances required. He says: "Instead of a complicated machine for distending the invaginated integument, I employed a piece of bougie, or gutta percha, to one end of which was attached a strong double thread. The plug, thus prepared and smeared with cantharides ointment, was drawn into its place by the threads, which, by means of a curved needle, guided on the fingers fairly within the ring, were passed, at the distance of rather more than an inch from each other, through all the textures to the surface, where they were tied firmly together on a piece of bougie, to prevent undue pressure on the skin."

Operation.—May 27th. The patient having had his bowels well freed by castor oil, taken the night previously, and his bladder emptied a few minutes before, was placed in the recumbent position on a table, with his legs hanging over, his feet supported, his shoulders slightly raised, and the right thigh flexed a little. Standing between his legs, I pushed up, with the forefinger of my left hand, a large plug of scrotal integument into the external abdominal ring; and, feeling fairly within its sides, I took the needle with one of the threads attached, and, guiding it along the finger so placed, I transfixed the external pillar and abdominal parietes. Then, taking the thread from the needle, an assistant threaded it with the second cord, when I passed it through the internal pillar, and made its point appear about an inch and one-

eighth internal to the first aperture. Having then withdrawn the finger I pulled the portion of bougie, well smeared with cantharides ointment, by means of the two strings, into the situation previously occupied by my finger, invaginating the structures as it assumed its place; and, lastly, I tied tightly the two threads across the second piece of bougie, to prevent any injury to the skin by pressure. The patient suffered scarcely any pain, winning merely a little at each puncture of the needle. He was placed in bed after the operation, with the right thigh elevated slightly on a pillow, a small pledget of wet lint laid over the site of the ring, and a full opiate administered.

May 28th. Had slept well; in no pain; a faint redness visible about the needle-punctures.

May 29th. Rested easily; free from pain; and no tenderness whatever on pressure in the abdomen. He says that when he coughs he feels, to use his own phrase, "quite tight below." It would be tedious to give the details of this case from day to day. It will suffice to say that he went on as favourably as I could wish in every respect, and never had a bad symptom. I removed the bougie on the 7th June, and found that the punctures were slightly ulcerated near the threads, with a blush of redness about them. The site of the external abdominal ring presented a round swelling, the size of a large nut, and was very hard to the touch. This appeared to be formed by the invaginated structures and lymph thrown out around the parts. The man coughed forcibly without in the least displacing the plug of skin, which was now firmly lodged in its new position—while there was some discharge from the excoriated surface inside the inverted integument. I then laid a compress of lint over the part, and applied a spica bandage. He was thus kept confined to bed until the 20th June, when I allowed him to walk about the ward with the bandage on. June 22nd I tested the result of the operation by making him cough violently and jump from a chair to the ground several times; but notwithstanding this exertion not the least protrusion occurred, and the ring appeared permanently sealed up. I put a truss on him with a very light spring, and permitted him to leave the hospital on the 25th June—desiring him to wear it during the day, to avoid any great straining or exertion as much as possible, and to let me see him occasionally. I saw him very recently; and the disease is, to all appearance, cured. He is able to follow his trade with comfort, and feels the part as strong and unresisting as any other portion of the walls of the abdomen.

I have performed Wutzer's operation for the cure of hernia three times, and have seen Wood's procedure done twice, and, as far as my opinion goes, must give the preference to this of Mr. Syme. I cannot conclude better than by repeating the three advantages it possesses, as stated by that able surgeon:—"1st. That it may be executed by means which are in the possession of every surgeon, instead of the complicated, expensive, and not easily manageable apparatus, hitherto deemed indispensable. 2nd. That it may be accomplished with much more certainty through the secure guidance of a finger, than by trusting to a piece of wood, for gaining admission within the tendinous ring. 3rd. That the two threads, co-operating in their effect, render the chance of adhesion between the textures much greater than when it is attempted by the mere puncture of a needle."—*Dublin Quarterly Journal*, Nov. 1863, p. 265.

46.—ON TRUSS PRESSURE IN INGUINAL HERNIA.

By JOHN WOOD, Esq., Demonstrator of Anatomy, King's College, London, and Assistant Surgeon to the Hospital.

On dissecting the coverings of a hernia of whatever size, it will be found that their weakest part, both behind and in front, is that opposite to the long axis of the hernia or inguinal canal. If, consequently, it is attempted to prevent the entrance of the bowel into the sac by the pressure of a convex

surface, such as is found in most trusses in common use, the effect is simply to reverse the action of the bowel on the front walls of the sac, and invert its convexity into the canal, and, at the same time, to perpetuate or increase the injurious backward pressure upon the already weakened posterior wall of the inguinal valve.

The theoretic perfection of a truss pad would be one which would fulfil four indications—viz., 1st. To oppose resistance to the first egress of the bowel through the deep ring by flat pressure over its site. 2nd. To press firmly upon the outer pillar and Poupart's ligament, so as to prevent their yielding before the tumour. 3rd. To press firmly and independently upon the upper wall of the canal, lying behind and above the inner pillar; and, lastly, to leave the axis of the canal and the superficial opening uninvaginated and not stuffed out by the front coverings of the rupture.

The ordinary neglect of these indications has led to the practice of putting on convex truss pads, under the use of which the hernial openings are continually widened by invagination of the skin and front coverings of the hernia, giving rise to a gradual increase of the rupture in size as noticed each time it is suffered to come down. The constant wearing of the truss, with the view of producing a cure by gradually lessening the rupture and closing its openings, thus produces the very opposite effect, of enlarging them. This effect is much increased by the constant boring or lateral motion of the side spring during walking in those trusses which have no joint between it and the pad.

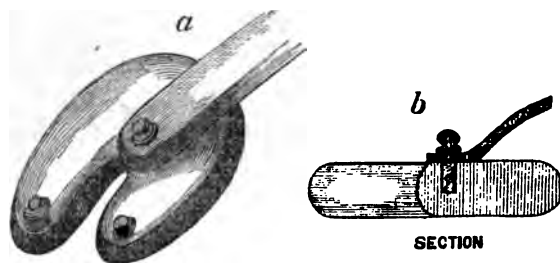


Fig. 1.

To meet these requirements, I devised a truss-pad for oblique hernia, having a perfectly flat surface, rounded off at the edges, and arranged in the shape of an oblique horse-shoe, with one end longer than the other (see Fig. 1). The bow of the bend is placed over the deep opening of the rupture, and the two ends over the two pillars of the ring, respectively following their several directions and obliquities. The cleft or fissure is placed over the axis of the canal and superficial ring. This truss-pad has the additional advantage of permitting the cord to emerge over the pubis without being subjected to pressure, by placing it within or under the cleft. The ends of the pads are also placed on each side of the pubic spine, so as to avoid a source of annoyance resulting from chafing of the skin over this bony projection, which is so commonly experienced in wearing the ordinary pads.

For direct hernia, also, I have devised an ovoid ring pad, with a flat bearing margin, intended to surround the margins of the direct opening, and to prevent their dilatation without invaginating the front coverings of the rupture into the hernial aperture (see Fig. 2). The hole in this pad (like the cleft in the horse-shoe) permits of a certain degree of projection of the skin into it, sufficient to fix and hold it from shifting under the pressure of the side spring or belt, without at the same time permitting the sac or bowel to project, for which a much wider interval would be necessary. These pads, in fact, effect as nearly as mechanical appliances can do, what the fingers of the surgeon do when he is holding up the rupture of a patient without invaginating the sac. For ordinary purposes, these pads may be made of

box-wood well smoothed off. I have now a great many such in use, both upon patients who have been operated on for the radical cure (after which I

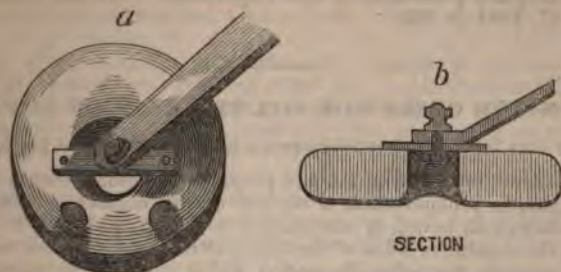


Fig. 2.

consider their temporary use to be essential to support the newly-formed adhesions, without causing their absorptions), and upon others who have objected to an operation, or in whom I have considered it inadvisable. They keep their place quite as well as the common pads, and have kept up ruptures which no other truss has been able to accomplish.

An india-rubber water cushion may be fitted to the surface of these pads, which will relieve the skin under their immediate pressure in cases where this is necessary. Mr. Matthews, of Portugal-street, has fitted some for me latterly, which have been very satisfactory. In infants, the pad so protected may be fastened to the body and thigh by an elastic figure of 8 band, of sufficient power to retain the rupture without being liable to shift or to interfere with cleanliness or the movements of the child.

In special cases I have had recourse to a lever spring within the pad itself, acting by two movable ends at the lower part upon a joint at the upper part, in conjunction with the pressure of the side spring or belt. By means of these pad springs we obtain an increased pressure at the lower end of the pad, which enables to overcome some of the difficulties arising from a protuberant abdomen or projecting hips, as well as those resulting from a peculiar direction of force in the rupture itself. These pads have been worn in many very difficult cases with the best possible results. In some adult cases I have watched, a decided diminution of the size of the rupture has ensued.

It is, however, a matter of common remark, that few cases of cure, comparatively with the number of cases and trusses worn, have resulted from treatment by pressure only, even in the young, and how very rarely such a result ensues in the adult ruptures. In difficult and large cases I have employed a truss-pad split into two halves for independent pressure upon the two pillars. Each half is acted upon by the separate ends of a spring going round the hips like a double truss. The twin halves are connected with each other by an elastic or leather strap.

It has, therefore, long been a desideratum in surgery to obtain a method of procedure at once safe and efficient to effect a radical cure of this very common and serious deformity. If by a radical cure is meant such a closure of the groin as to render the production of a rupture on that side ever afterwards impossible, then such an effort is no more within our reach than that the cure of an aneurism guarantees against any more aneurisms on the artery operated on; or an operation for urinary calculi against the formation of more stones; or amputation or excision for diseased bone against any more diseased bone; or dividing tendons for deformities against the return, in a certain percentage of cases, of the same or a like distortion. But if it is meant by a radical cure, that the parts shall be rendered more secure against rupture than the same parts were before the rupture, in a proportion of cases quite as great as the success in most surgical operations, then I conclude (from the experience of nearly one hundred cases during the last six years)

that, by the operations which I propose to describe in future papers, this great desideratum may be arrived at with as little or less risk to life or limb as in any surgical procedure of like importance. *Medical Times and Gazette*, Feb. 27, 1864, p. 223.

47.—ON THE OPERATION FOR THE CURE OF RUPTURE.

By JOHN WOOD, Esq., Assistant-Surgeon to King's College Hospital, London.

The consideration of the causes and progress of inguinal hernia will render it evident that, to produce such a closure of the hernial opening as shall prevent either sack, bowel, or omentum from escaping, it will be necessary so to close the tendinous sides of the inguinal canal to such an extent as to restore, if possible, the valve-like action which it exerts in restraining the egress of the viscera. It is evident that this cannot be done by dilating the openings by a hard plug of wood, as attempted in Wutzer's and Rothmund's methods, nor by invaginating a portion of the skin of the scrotum, as in Gerdy's, nor by merely procuring adhesion of the pillars of the superficial ring, nor obliterating the cavity of the sac by seton, or injection, or by the various other methods which have been tried and failed ever since surgery became an art. To make the parts strong, resisting, and permanently secure, the aponeurotic passage must be closed entirely up to the deep ring. To do this with safety, so as to guarantee the patient against the severe consequences which often ensue from a direct opening into the peritoneal cavity, such as followed the operations of Schmucker, Langenbeck, Abernethy, and Sharp, it is necessary to give the operation a subcutaneous character.

From the experience of some surgeons, resulting in the failure of almost all the cases where the operations were slight, and in a great fatality where the operations were severe, many surgeons have been led to doubt whether it be possible, consistent with the safety of the patient, to deal with the hernial structures so effectively as to produce a complete and permanent cure.

Direct and positive personal experience of nearly 100 cases, with the result of more than two-thirds of cures, and only one death (from pyæmia), and treated mainly in a public hospital where the greater part of the cases have been from time to time publicly exhibited during the last six years, enables me to speak positively as to both the facility and utility of the operations which I propose to describe.

In the first twenty cases, I used for the purpose of drawing together the sides of the canal, ligatures of stout wax thread tied over a compress of wood. This, though presenting certain advantages in its flexibility and ready management, I afterwards discarded for stout copper wire silvered over. This substance I have undoubtedly found to give rise to less suppuration and more indurative action, to be less likely to strangulate the parts over much, and particularly to give the power of applying a proper and beneficial amount of pressure upon the deeper parts of the canal during the time that the wires remain *in situ*.

I now practise two operations for the radical cure of hernia. In both, metallic substances only are used. One operation is for large cases occurring in the adult, in which the hernial openings are so large that its sides cannot be approximated without so much strain as to cut out the ligatures before they have effected all the purpose required. In such cases it is advisable to invaginate so much of the fundus of the hernial sac and its coverings as to fill up the openings completely, and to tie upon it the sides of the hernial canal, so as to procure a complete adhesion and blending together of all these structures. The skin itself is not invaginated, because, its surfaces not being capable of adhering together, the hollow glove forming the invagination serves no other purpose than to keep separate the pillars of the superficial ring and to act as a dead weight or drag upon the parts which may have become adherent above, so as gradually to draw them down and repro-

duce the rupture. This is what generally occurs after Gerdy's and Wutzer's operations have been performed.

The other operation I employ for smaller cases, and those which are congenital or occur in children and young adults. It consists simply in skewering or trussing together the sides of the canal, along its whole length, by rectangular pins, which are then connected together at each end by loops, and thus are made to compress the canal and sac subcutaneously until the sides have become adherent. This operation is in itself so simple, the after-pain and inconvenience to the patient so slight, and any symptoms so rare, that, after upwards of forty trials of it, with only two failures, I am inclined to place the greatest confidence in it, when properly and carefully done, in those cases which are suitable for its performance.

The Operation by Wire.—The scrotum and pubis being shaved, the hernia carefully reduced, and the patient placed under chloroform to such an extent as to overcome voluntary motion in some degree, as well as sensation, an inch-long incision with a small tenotomy knife is made through the skin of the scrotum, about two inches below the pubic spine, and directed obliquely downwards and outwards. The skin is then separated at the sides of the incision from the deeper fascial tissues to the extent of an inch on each side. This is done by using the point of the knife flatwise. The fascia thus detached is then invaginated into the abdominal ring and canal as far up as possible, upon the forefinger of the operator, the cord being pushed to the outer side. The lower border of the internal oblique muscle is then felt for, and hooked forwards upon the finger. This brings into prominence at the inner part of the deep wall of the canal the edge of the conjoined tendon. A stout, equally-curved needle, mounted on a strong handle and with a blunt point, is then oiled and carried along the inner side of the finger and made to transfix the conjoined tendon and internal pillar of the superficial ring from the deeper surface. When the point of the needle is seen to raise the skin of the groin, the latter is drawn over by an assistant towards the linea alba before the needle is pushed through it. One end of a well-oiled piece of silvered wire, about two feet long, is then hooked on to the eye of the needle and drawn back with it into the scrotum with a slight jerk. The needle being detached from the wire, the finger is again passed into the canal and placed behind Poupart's ligament near its middle, this structure being well raised up from the deeper parts, and the cord pushed over to the inner side of the canal. The needle is then passed along the outer side of the finger, and made to transfix the middle of Poupart's ligament from behind. When seen to raise the skin, this latter is drawn outwards by the assistant until the point of the needle can be passed through the hole in the groin before made. The opposite end of the wire is then hooked on to the needle and drawn through into the scrotum, leaving a loop of wire protruding at the upper puncture, the needle being then again disengaged. Next, the sac of the rupture within the scrotal incision is pinched up between the finger and thumb (see Fig. 1), which are made to separate it from the vas deferens and spermatic cord in the same manner as in taking up varicose veins of the scrotum. The needle is then passed across the sac close in front of the spermatic cord. The inner end of the wire is then hooked on to the needle and drawn



Fig. 1.

through across the sac after the needle. The ends of the wire are then twisted down into the scrotal puncture and cut off to about four inches in length. Traction is next made upon the upper loop, by which the lower twisted ends of the wire are drawn into the canal, invaginating the twisted sac up to the deep ring. Three or four firm twists of the wire loop are sufficient to retain the sac in this position, and to draw tight upon it the sides of the inguinal canal. The loop and ends of the wire are, lastly, connected together over a pad of rolled lint, placed at (a) Fig. 2, between the wire and skin, and held steady by a spica bandage and compress.



Fig. 2.

During the operation the knees of the patient must be kept well together, and flexed upon the trunk so as to relax the structures in the groin. He must be put to bed in the same position, with the knees and shoulders raised upon pillows.

The first night or two he will usually require a sedative draught, but the necessity for this varies in different patients. If the patient's bowels have been opened by castor oil before the operation, no anxiety need be felt on their account during the first week, when the diet should be milk, eggs, and beef-tea, or a chop after a few days if the patient wishes for it. Pain usually passes off entirely after the first or second day. About the third serum is discharged through the wounds. A little suppuration may then make its appearance, and about the same time the canal becomes distended by a solid effusion of lymph, forming a hard tumour up to the deep ring. In large

cases that part of the sac which remains below the wire in the scrotum may suppurate and prolong the cure. In general, however, the wire may be removed about the tenth day. As a rule, the larger the rupture the longer the wire should be kept in. If suppuration be at all free, the unyielding wire forms a very good conductor for its free escape. In some very large cases I have kept in the wire for a fortnight or three weeks.

Very large cases of direct hernia require a somewhat more complicated arrangement of the wire. Thus, I have made the wires cross each other inside the canal, and by applying the needle a fourth time at the scrotal incision have obtained another hold upon the inner and outer pillars of the ring close to their insertion upon the pubis. By this means a large hernial opening is closed by a couple instead of a single stitch, and guarded more effectively against a reprotrusion of the rupture close above the pubis and behind the upper suture. This is especially required in direct cases, whether originally so or converted from oblique hernia. These cases do very well generally, though the treatment is sometimes more prolonged than usual. In every case either a complete cure or a more effective support by a truss has been the result.—*Medical Times and Gazette*, March 26, 1864, p. 336.

48.—ON A NEW FORM OF TRUSS.

By T. P. SALT, Esq., Birmingham.

[Mr. Salt exhibited this truss lately at a meeting of the Royal Medical and Chirurgical Society of London. It is not described, but it is stated to possess the following advantages:]

1. It affords, in addition to the usual *inward* pressure of ordinary trusses, a second or *upward* (lifting) pressure, always required for support of hernia, and attempted to be given by a variety of clumsy contrivances, the chief of which is the linen strap from behind fastened upon a peg at the lower part of the pad. This is the only truss which gives the lifting pressure in an unobjectionable manner.

2. By the peculiar mode in which the vertical or lifting springs are attached to the pads, no displacement of the pads can take place when once put in position; neither can there be any friction on the skin over the hernial openings.

3. The facility with which the position of the pads may be placed in relation to the median line of the abdomen, and the spring across the abdomen having curves coincident with it, the spring of the truss lies more evenly against the body.

4. The back support, consisting of two pads instead of one—one placed above the horizontal line (spring), the other below—gives greater stability to the front part on which the pads are suspended; hence this truss is more likely to remain *in situ*.

5. Every part of the patent truss is made by machinery, instead of by hand; hence any portion damaged or soiled can be rectified without the necessity of sending the truss to the instrument-maker.

6. The pads are an eminent improvement. The fringed edges of ordinary trusses, in which the cushions are made by stitching, are constantly chafing the skin; but by turning these cushions into a metallic capsule or clip, the edges and surface of the pads are exquisitely smooth and soft.—*Lancet*, Dec. 5, 1863, p. 653.

ORGANS OF URINE AND GENERATION.

49.—ON LITHOTOMY.

By Dr. G. M. HUMPHREY, F. R. S., Surgeon to Addenbrooke's Hospital, Cambridge.

[When first appointed Surgeon to Addenbrooke's Hospital, Dr. Humphrey carefully studied the operation of lithotomy, by reading and practising on the dead. He thus laid down a plan for his future guidance, and to this plan he has adhered in every case since.]

There is nothing new in the plan. The chief features of it are—first, to cut as little as possible of the deep structures (a rule applicable to other operations as well as to lithotomy); secondly, to use all possible gentleness in every stage of the proceeding. The most successful operator I had seen was peculiarly gentle in his manipulations. So far as I could gather from those who had seen him operate, this was also the great secret of Martineau's success. My impression, too, derived from the same source, is that he usually cut the neck of the bladder very sparingly, or not at all. I admit that free incisions make the operation quicker and more easy, facilitating the introduction of the forceps and the seizing and extraction of the stone; but I am confident that they make it more dangerous, increasing the risk of hemorrhage and of diffuse suppuration in the pelvic tissue. Free incisions are advocated because they diminish the necessity for rough, forcible dragging at the stone, and consequent tearing and bruising of the structures; but it is surprising how much the structures will yield, without tearing or bruising, while the stone is being slowly and cautiously drawn away. It may be a question which is the worst, free use of the knife or rough use of the forceps. The plan I advocate is that of using the knife little and the forceps slowly. By far the greater number of operations may be conducted on this plan; and I never depart from it unless compelled by the size of the stone or other unusual circumstance.

I perform the common lateral operation, using a curved staff with the groove on its convexity, not to one side, and a common scalpel, and hold this as it is usually held in other operations. I cut freely and quickly at first till the staff is reached, and then proceed slowly and carefully, introducing my left fore-finger after each incision, so as to ascertain how much has been cut, and sometimes do this several times before the bladder is opened. When the finger can be passed into the bladder with a little force I press it on beside the staff, stretching or tearing the prostate gently as it goes; feel and examine the stone; and, the staff being now withdrawn, dilate the prostate further if necessary, or, if the stone proves to be large,

incise it cautiously with a straight blunt-pointed bistoury passed along the finger. My finger is long and rarely fails to reach the stone, and I do not withdraw it till the forceps are lodged in the bladder. As the opening into the bladder is small and occupied by the finger, I have to be careful that the forceps take the right course; and sometimes experience a little difficulty in passing them through the prostate, but never made a mistake in this. However many times it may be necessary to reintroduce the forceps or other instruments into the bladder, my finger invariably precedes, guiding them, and assuring me that they take the right course.

Although I thus use the finger to ascertain the progress which is being made with the knife, and to dilate or tear the prostate, I am very careful not to dilate or otherwise interfere with the tissues *external* to the prostate and superficial to it. This is an important point with which I was first impressed when operating upon a dead subject—a lad. I found that by moving the finger about, though unconscious of having done so freely, I had created a cavity between the bladder and the rectum which I at first thought was the bladder. I have seen the same thing happen in the living subject more than once, and to experienced operators, and I believe it to be no unfrequent occurrence in children. The prostate in them is small, and there is often a difficulty in passing the finger through the incision, along the staff, into the bladder. The cellular tissue external to the prostate is soft and distensible; and in the movements of the finger attempting to find its way into the bladder an artificial cavity is produced which is mistaken for the bladder, and in which the forceps are probably thrust before the mistake is discovered. It is needless to say what frightful mischief may now ensue from the opening and closing and other movements of the forceps, in search of the stone, in rough or nervous hands. The records of lithotomy—and we need not search beyond the recent records—supply numerous disasters which may be thus accounted for. I am especially anxious to call attention to this source of blunder in the operation because I am not aware that it has been clearly pointed out by others. I was accidentally apprised of it myself in the way I have mentioned. In operating on children I think it most important to use the finger very cautiously in the deep part of the wound, to beware of letting it roam about in the soft loose tissue there, and to compel it sedulously to follow the knife along the staff till it is positively within the bladder. The staff should not be withdrawn or the forceps taken till the finger is in contact with the stone; and the forceps should be guided along the finger into the bladder, so that the operator has the assurance of the blades being in the bladder before he attempts to seize the stone with them.

It appears to me that the difficulties of the cutting part of lithotomy are rather understated, and that it is a mistake to say that the difficulty begins when the cutting is over. In children, certainly, there is apt to be difficulty in opening the bladder. Indeed, my own experience and my observation of others indicate that this is by no means the least difficult part of the operation. The distance of the bladder from the perineal surface in young subjects, the indistinctness of the structures, the prostate especially being small and not easily recognized by the finger, and the soft yielding quality of the cellular tissue, combine to cause trouble in this stage. I have seen the difficulty with the gorget as well as with the knife, and remember one of the most experienced of operators passing the gorget and forceps behind the bladder into the rectum, and astonished to find faeces instead of a stone. The bladder had not been opened. Attempts were made to re-introduce the staff, but it ran into the wound. After much delay another surgeon succeeded in inserting a director through the wound into the bladder, incised the prostate, and finished the operation. The patient, a lad, recovered quickly and completely.

The old fashioned forceps, with blades sufficiently wide and curved in their length to hold the stone well, are, I think, the best: they are simple and easy to manipulate, and the extent to which the blades are separated is at once known by observing the handles. They should be selected rather large in proportion to the size of the stone, because the stone is more easily seized *than with a smaller pair*, and more easily extracted when it is well covered

by the blades. It is a very common mistake to select them too small. Often, when I have experienced a difficulty in grasping the stone, and wondered what was the cause of the difficulty, I have at once overcome it by using a larger pair. I do not cover the blades with linen or any other material, because that renders it less easy to know when the stone is touched by the forceps, or when it is being included between the blades or slipping from them.

I often use the scoop, especially in children, and where the stone is small. It is a safe instrument, being easily passed along the finger into the bladder and kept under the cognisance of the finger during the whole period of its use. The handle should be flat and rough; and there is a convenience, in some cases, in having the bowl inclined a little upon the blade, as it then sweeps over a greater surface, during the rotation of the handle, than when it is continued quite straight. It was by means of a sharply curved and strong scoop, after failing with the forceps, that I extracted the largest stone I have seen removed: it weighed six ounces and a half. The patient recovered without a bad symptom.

The finger in the bladder has ascertained the position, size, and shape of the stone, and adjusted it favourably; and the forceps selected accordingly, are directed towards the spot. In searching with them for the stone, and opening and closing the blades, and in extracting the stone, there should be no hurry and violence, but cool, quiet gentleness. Celerity is of very little importance in comparison with safety, and a few minutes more or less is of slight consequence. The cautious use of the forceps searching for the stone, or their repeated introduction, does little or no harm; whereas the hurried attempt to emulate those surgeons who speak of catching the stone as it is carried forwards by the gush of urine when the forceps first enter the bladder, may lead to the needless laceration of parts, or the thrusting of the forceps between the bladder and the rectum. When the forceps have reached the situation of the stone indicated by the finger, if they be gradually opened wide, and at the same time pressed gently onwards in the direction of the stone, and then closed, the calculus will commonly be found between the blades. Often, however, there is a good deal of trouble in seizing it. This is acknowledged by all operators, so that no one need be astonished or disturbed at it.

Sometimes the parts offer a good deal of resistance to the extraction, especially if the prostate be large and the stone also large; and considerable force may be required. I employ it cautiously and take time; for by gradually-applied force not much injury is done beyond the stretching and tearing absolutely necessary to admit the passage of the stone. The lesion of continuity by this plan is at the minimum. Whereas cutting, especially cutting the tissues stretched upon the stone with a bistoury passed between them and it, as recommended by some, may do much harm, and divide more than is requisite. When it is necessary thus again to resort to the knife, I press the forceps, holding the stone, back into the bladder, insert my finger along the handles, and guide the scalpel or straight blunt-pointed bistoury upon the finger.—*Lancet*, April 23, 1864, p. 460.

50.—LITHOTRITY WITHOUT INJECTIONS.

By HENRY THOMPSON, Esq., Surgeon to University College Hospital.

Hitherto all operators have agreed in recommending that the urine should be first withdrawn, and that from four to six ounces of warm water should be injected into the bladder before introducing the lithotrite for the purpose of crushing the stone. It has been assumed that the presence of at least that quantity is essential to protect the walls of the organ from injury when the lithotrite is opened and closed. And further, it has been considered desirable that the fluid should be present in *known* quantity. Hence lithotritry has often been regarded as inadmissible in a case where the bladder has been so irritable as to contain only an ounce or two of urine; and lithotomy, or a prolonged course of sedative, baths, and injections, usually ending

in disappointment, has been resorted to with the view of enabling the bladder to retain the orthodox "four to six ounces."

I am quite sure that this quantity is unnecessary. Of late I have been content with two or three ounces, and, taking proper precautions, have crushed with the best results in an ounce of fluid. Neither does it appear necessary to know the exact quantity before commencing; for on first opening the lithotrite in the bladder, which the operator does very gently as feeling his way, the amount of space available for his manipulations is at once manifest. Moreover space in the bladder does not necessarily correspond with the presence of some fixed quantity of water therein. In some conditions of the bladder—or, to speak more accurately perhaps, in some bladders—two or three ounces afford as good a working area as five or six ounces in others.

It may be said—What is gained by the omission to inject? A very considerable advantage. It appeared to me very early in my experience of lithotrity, practised by others as well as by myself, that most of the untoward occurrences met with arise either from too much or too rough manipulation, and that any step towards the improvement of the operation must for the most part be made by diminishing the amount of instrumental contact with the bladder and urethra. Hence, instead of introducing a catheter to draw off the patient's urine, and applying a syringe to inject a known quantity of water, I asked the patient to retain his urine for a little less than his accustomed period before the sitting; that is, if naturally he was able to retain his urine for about an hour, he was requested to pass it forty minutes before the time of the visit. The lithotrite was then at once introduced, and the crushing proceeded with. It is certainly undesirable to operate when the patient is urgently wishing to pass urine; hence it is as well to commence rather too soon than too long after the last act of micturition. In this manner the operator deals with a bladder not yet aroused to action, as it is sure to be when a catheter has been introduced, and when, moreover, the viscus has been unnaturally distended: for however slowly and gently a syringe of liquid is thrown into the bladder, such injection is more irritating than the cozing in of the natural secretion by the ureters. An entire "sitting," then, consists in introducing the lithotrite; in crushing the calculus five or six or a smaller number of times, for which two or three minutes is a sufficient period; and in withdrawing the instrument.

Such may be regarded as the rule of practice. But when the bladder is much atonied, its coats being deficient in tone, and a large portion of urine remains behind after each act of micturition, it is mostly advantageous to empty the bladder, and inject a few ounces of cool water. The stimulus of water at 60° or 70° Fahr. sometimes gives tone for a time to the muscular coats, and so aids in producing a better formed cavity for operating in than a capacious, atonied, and flaccid bladder presents.

Next, in reference to injections made subsequently to the crushing of the stone, little or nothing appears to be gained by their employment. Three or four rapid injections through a large evacuating catheter generally cause more distress, and are certainly calculated to do more mischief, than the operation of crushing. Besides it is not the best time to make them in relation to the object of their application. If used at all, it should be after nature has been allowed a period of three or four days at least in which to expel the *débris*. It is a remarkable power that which the urinary apparatus possesses of expelling foreign bodies, not only from the cavity of the bladder, but from the innermost termination of the organs in the kidney, and it appears perhaps to be scarcely enough relied on by some operators. It is a most happy provision for the safety of the individual, and, after all, relieves humanity of an infinitely greater number of stones than the surgeon does. He only comes in to remedy the exceptional failures of nature. I like to feel how efficient an ally there is for the lithotritist in this said power, and to leave the expulsion of the *débris*, when properly pulverised, very much to those admirably adjusted arrangements existing for the purpose; and my experience of their capability in this respect is considerable and satisfactory.

Only, when it fails, we must, as before, step in to aid nature again, and promptly.

On referring to my case book, I find, in relation to the first question, that I have crushed upwards of a hundred times without using a preliminary injection; and, in relation to the second question, that I have completed successfully eleven cases of lithotrity, most of them recent, without once using the evacuating sound. The *débris* have been easily and entirely expelled by the natural powers of the patient.—*Lancet*, Feb. 20, 1864, p. 209.

51.—LITHOTRITY WITHOUT INJECTIONS.

By GEORGE POLLOCK, Esq., Surgeon to St. George's Hospital.

[Mr. Pollock, in a paper elicited by the preceding article of Mr. Thompson's, says the latter seems to have considered that "a considerable improvement on the usual practice," which is, in reality, an old method of practice.]

In the wards of St. George's Hospital, and in private, I have for some time past discontinued the use of injections prior to the operation of lithotrity. In a case of stone in the bladder of an adult, and on whom it is decided to perform the operation of lithotrity, to inject the bladder previous to the introduction of the lithotrite has long appeared to me, not only a superfluous interference, but an unnecessary prolongation of operative manipulation. In a sensitive individual, or in the case of an irritable bladder, an injection appears rather to increase than diminish annoyance, and mechanically affords no aid; for a stone, readily detected on the introduction of a catheter for the purpose of injecting the bladder, often less readily falls into the gripe of the lithotrite than if no injection be employed.

It has never been satisfactorily proved to me that preliminary injection in cases of lithotrity is either requisite or beneficial in any degree. My experience has entirely gone to prove that, as a rule, there is no occasion for it. Why should it be otherwise? Whatever quantity of urine the bladder is capable of retaining is all-sufficient for the purposes of the operator and for the successful accomplishment of the operation. If a bladder will not hold more than three ounces of urine, that quantity will suffice to enable the surgeon to crush the stone, without difficulty and without danger. If the bladder will not hold more than three ounces of urine, rarely will that viscus hold a greater quantity of tepid water; and, other things being equal, there is no benefit in tepid water over urine as a medium in which to crush a calculus; so that it does not appear that there is any advantage in the use of preliminary injection, even in the case of an irritable bladder. If the bladder will not hold more than a small quantity of urine, it will not probably hold more tepid water; and so, to the operator, the evil is equally balanced between the capacity of holding the one or the other. Therefore, if the urine is not drawn off prior to the introduction of the lithotrite, there is *pro tanto* the less irritation to be endured by the patient.

During the past few years several successful cases of lithotrity in the female have occurred in St. George's Hospital; and many equally successful cases have been recorded in the journals, from other hospitals. But the testimony which my experience enables me to furnish in such operations bears, I think, strongly in the balance against the use of injections prior to lithotrity. In the female, on the introduction of the lithotrite into the bladder, the greater portion of the urine immediately escapes. I doubt whether three ounces of urine, or water, were ever retained in any such instance during the act of crushing a stone; it is more probable that in most, if not in all cases, the bladder was almost empty. But in all, calculi have invariably been readily and successfully crushed, without local irritation or injury.

If we may draw any analogy based on justifiable reasoning, it is but fair to infer that if a stone be successfully crushed in a female bladder under

such conditions as have been stated, there is not much reason to apprehend danger under circumstances somewhat similar, but usually more favorable, in the male; for in the latter the bladder can rarely be so entirely emptied on the mere introduction of the lithotrite.

There is another remark in the observations of Mr. Thompson which I am sure he will thank me for drawing his attention to and correcting. He states that "hitherto *all operators* have agreed in recommending that the urine should first be withdrawn;" and subsequently that from four to six ounces of water should be injected into the bladder, before the introduction of the lithotrite for the purpose of crushing a stone. It is to be regretted that care was not taken to ascertain the practice of the many experienced surgeons of the metropolitan hospitals in this respect, before this statement was made; for while my own practice disproves its accuracy, I cannot but think that men of more matured experience than either of us, and with equal if not superior powers of discrimination, may have arrived at results similar to our own.

My own experience of lithotrixy—first gained in the wards of St. George's Hospital, under the earliest instruction of our great teacher Brodie, and later under the practice of those who worthily followed him, and now matured by not a few years of personal observation—has taught me, as others must also have learned, that there are numerous cases in which patients afflicted with stone in the bladder cannot retain six or even four ounces of urine at a time; much less can the introduction of that specific quantity of tepid water be borne, at any rate not until the stone has been once crushed.

Such are the results of my personal experience, and such are the principles that have been inculcated on those who have associated with me in our daily work in the wards of St. George's. I see no reason to anticipate that the experience of others, with equal if not larger fields for observation, will materially differ from mine or contravene the statements herein made.

The treatment usually pursued by myself in cases of lithotrixy is the very simplest that can be adopted so as to obtain the object in view. The patient is requested to retain his urine for a few hours, if possible, prior to the introduction of the lithotrite. At the time of the operation he lies flat on his back, sufficiently low in his bed to ensure the entire trunk being on one plane, that the shoulders be not on a higher level than the pelvis. The pelvis is not raised in any degree above the rest of the body. It is rare that this rule need be departed from. The lithotrite is introduced without any preliminary use of a catheter; and as soon as the stone is crushed as much as may be considered advisable, the instrument is withdrawn, and the bladder left without further molestation for that day. A small dose of laudanum is usually given in warm brandy-and-water immediately after the operation, with a view to relieve discomfort and ward off a rigor.

Mr. Thompson states that "little or nothing appears to be gained" by the employment of injections after the crushing of a calculus. If, however, injections are to be recommended or employed, it is certainly *after the operation* that they appear occasionally and not unfrequently to ensure comfort, and to be attended by advantage.

There are cases in which a catheter must be employed to draw off the urine after a stone has been crushed. A patient is occasionally unable to pass his urine without the aid of an instrument. A patient at present under my care has passed the entire *débris* of a considerable mass of stone through a catheter, for no urine can be passed otherwise. In such cases the urine is generally alkaline, loaded with ropy mucus, often offensive, and the bladder extremely irritable. Under such circumstances, the comfort and relief from tepid water injections, occasionally used, are so marked that patients have requested me to have recourse to them, when once their efficacy has been experienced, to relieve discomfort and to get rid of fragments. I only speak of what has occurred to me, but there is no reason why my experience should be exceptional in its results.

The catheter through which the bladder should be injected subsequent to crushing a stone had better be of the largest size the urethra will admit with

comfort, and should be furnished with a proportionately capacious and longitudinal eye on the anterior face of the curve. With a large catheter, and through a corresponding large eye, fragments of stone will more rapidly pass away than if left to the mere chances of natural escape.

As far as my observations extend, the maximum size of calculi which readily pass through the urethra, without mechanical aid (either of catheter or other instrument), is usually restricted by the weight of four grains, although occasionally we observe larger ones passed. With the aid of a large-sized catheter (No. 11 or 12), fragments of a heavier weight may be removed without much difficulty or pain; but in this respect much more depends on the shape than on the size of a calculus. It must, however, be borne in mind as most important, that it is not so much the size of the fragments as the amount in weight of the detritus which a catheter and occasional injections enable us rapidly and readily to remove after a stone is crushed.

All surgeons will agree with the decision, that it is far preferable to crush a stone thoroughly, so as to allow the fragments to escape in small pieces, than to attempt to remove large fragments through the urethra by any mechanical means.

Mr. Thompson applies the term "sitting" to each crushing of a stone in the bladder. On consideration he must see that this term is misapplied, and is apt to mislead. We give an artist a "sitting" who takes our portrait. In surgery accuracy of language in writing is as essential in its way as accuracy of diagnosis is in practice. Under the operation of lithotrity the patient is on his back; the operator stands by his side. Let us apply words to their right meanings; the literature of medicine will lose nothing by the restriction.

Lithotrity is, of all operations in surgery, one of the most simple, one of the safest, and one of the most successful that we have to undertake. Upon its simplicity depends its little danger to the patient; and, given a healthy state of the kidneys, we may almost pronounce the operation in such a case unattended by risk. A light touch, and a very moderate amount of mechanical skill, are the chief requisites for its successful performance. "If prudently and carefully performed, with a due attention to minute circumstances, (the operation) is liable to a smaller objection than almost any other of the capital operations of surgery" (Brodie.) And to prove the truth of the words of the eminent surgeon, who has left on record the result of his vast experience, it is only necessary to recall to the recollection of the reader, that in 115 cases operated on by Sir B. Brodie, in five cases alone fatal results were attributed to the effects of the operation itself.—*Lancet*, March 12, 1864, p. 295.

52.—LITHOTRITY WITHOUT INJECTIONS.

By THOMAS P. TEALE, Esq., F.R.S., Leeds.

[Mr. Teale, in a letter to the *Lancet* on this subject, says:]

I can, with confidence, add my testimony to the value of the practice advocated by Mr. H. Thompson, of performing lithotrity without the preliminary injection of the bladder. This practice is, however, more extensively adopted than Mr. Thompson seems to be aware of. Mr. Pollock has shown that in his own practice he has for some time discontinued the use of injections before introducing the lithotrite.

In a paper which I published in a contemporary journal of December 10th, 1859, the following passage occurs:—"In the fifteen cases (of stone treated by lithotrity) in Table 3, the number of 'sittings' in fourteen is recorded, the smallest number being two, the largest, twenty-two, and the average number in each case about six. In all these operations the utmost gentleness of manipulation was practised, and this was much promoted by using a screw

lithotrite, as small and light as was consistent with sufficient strength. The patient was generally laid on a coach, the pelvis being raised by pillows. Before the operation the patient was desired to allow the bladder to become as fully distended with urine, as it could easily bear. By observing this precaution I have very rarely had to inject the bladder with water. The irritation caused by the introduction of a second instrument was thus avoided, and I have imagined that the bladder is more tolerant of the presence of urine than of the foreign fluid water. For this practical suggestion I am indebted to the writings of Mr. Syme."

I have, moreover, in all cases of stone which I have treated by lithotritry, invariably abstained from washing out the bladder to bring away the fragments, and have allowed the bladder, unaided, to expel them. I am well aware that cases may occur in which the contractile power of the bladder is so deficient as to render necessary the employment of the catheter and syringe. I have long discontinued the use of the pillow under the pelvis as being unnecessary.

It is desirable, as stated by Mr. Pollock, that the inaccurate word "sittings," as applied to the several operations, should be discontinued.—*Lancet*, March 26, 1864, p. 367.

53.—ON THE MEDIAN OPERATION OF LITHOTOMY.

By HENRY THOMPSON, Esq., Surgeon to University College Hospital.

[In some remarks upon a case of lithotomy, Mr. Thompson called attention to the value of the anklets designed and used by Mr. Pritchard of Bristol, for securing the patient in the lithotomy position.]

He then stated that he preferred the median operation to the lateral, even for stones of the size which had been seen in the theatre; and, also, why he selected this plan in preference to lithotritry for these particular cases. It was quite possible to crush such stones, but he did not think it advisable. Lithotritry was a very favorite operation with him, as was well known; and he regarded it as most admirably adapted, especially in elderly and debilitated patients, for small and medium-sized stones, such as those from two patients recently discharged cured from the hospital. But when we had to deal with hard and compact stones, weighing an ounce and upwards, he thought that median lithotomy was on the whole a safer and better proceeding, reserving the lateral operation for stones of the largest size. There was one thing needful, however, in his opinion, in performing it, and it was a matter of the highest importance if success was to be insured—viz., to take pains to secure the stone in good position in the forceps before withdrawing it, and to give time and patience to the extraction. The patient's life often depended more upon this single circumstance than on any other. There must be no attempt to drag it out in a hurry. Slow and steady traction, never to be hastened unduly, by a single second for the sake of the bystanders, would enable you to bring safely to light a stone of very considerable size through the simple incisions of the median operation. With regard to those incisions, he had for some time preferred the mode of making them which they had seen practised—viz., the dissection downwards from the surface of the perineum to the staff, and on to the prostate, instead of making a direct puncture and cutting upwards and outwards, after the manner adopted by Mr. Allarton, to whose perseverance and sagacity we undoubtedly owed the recent adoption of median lithotomy. In the method which he (Mr. Thompson) adopted, the palmar surface of the left index finger should be closely applied to the upper wall of the rectum while making the incisions. This enabled the operator easily and accurately to judge of the proximity of the blade to the bowel, and to make a freer and more funnel-shaped opening for the removal of the stone. Such an opening was more conformed to the relations of the adjacent viscera, and enabled us to extract larger stones with less difficulty.—*Lancet*, Dec. 5, 1863, p. 650.

54.—A CASE WHERE A PORTION OF TOBACCO-PIPE WAS
BROKEN INTO THE BLADDER.

By H. SMITH, Esq., Assistant Surgeon to King's College Hospital.

J. H., aged nineteen, was sent to my house on Saturday, Jan. 16th, by Dr. Riding, with the following story :—Three months previous, having a difficulty in micturition, he conceived the idea of passing a long clay pipe down his urethra into his bladder. He was so successful in his exploit that he repeated it, ten days before I saw him, on a similar emergency occurring, but on withdrawing the pipe he found that it was shorter by at least two inches than it ought to be. Relying, however, upon the efforts of nature to expel the body, he consulted no one, although he had great pain and irritability of the bladder, which went on increasing until his parents, hearing his groans while he was passing urine, made him confess the accident. He was immediately taken to Dr. Riding, who sent him to me.

On introducing a sound, I at once struck the pipe, lying on the right side of his bladder. The urethra was fortunately a capacious one, free from stricture, and not at all sensitive. I sent him home, told him to go to bed, and retain his urine for three hours before my arrival, and on the same afternoon I proceeded to operate. I at first had some hopes of being able to extract the entire portion of pipe by means of a very fine lithotrite, but, either owing to my own awkwardness or to the abrupt curve of the instrument, I had so much difficulty in introducing it that I changed my tactics, passed in an ordinary-sized lithotrite, and, readily catching the foreign body, broke it in two pieces. I then seized one of the halves—the waxed end, as it proved to be, and broke it up. I then washed the bladder well out with warm water, using a catheter with very large eyes, but I got nothing away. At ten p. m. I called on the patient, and found that he had passed about half of the waxed end of the pipe, and he was very comfortable. On calling the following morning, to my great astonishment I found that the patient had passed in its entirety the half unbroken portion of pipe, measuring exactly one inch and an eighth, and numerous fragments besides. On placing them all together, it was evident that the whole two inches had come away. I washed the bladder well out on that and the following day, removing a quantity of powder and minute fragments of clay, and on the next day but one the patient walked a long distance to my house, free from every symptom.

This case is an interesting addition to the two cases recently published in the *Lancet*, where in the first instance Mr. Fergusson removed an entire bougie from the bladder by means of a lithotrite, and in the second Mr. Henry Thompson was equally successful in extracting a hair-pin, and, together with them, it goes to prove what may be done with the lithotrite in cases of foreign bodies in the bladder. It is doubtful whether I could have succeeded in extracting two inches of a rigid body from the bladder along the urethral canal with safety had I introduced a proper instrument. However, the result of the treatment I adopted, if not so brilliant a *coup de main* as in the cases referred to, was equally satisfactory. There is one reflection which this case suggests in reference to perhaps the most important point connected with lithotrity—viz., as to the treatment of fragments. The speedy and spontaneous expulsion of the foreign body after it has been broken up conveys the hint that we should be content with simply breaking up a stone and leaving Nature to do the rest. At the same time, however, it must be borne in mind that in this case the bladder was perfectly healthy; whereas in cases of stone we often meet with a bladder more or less diseased, sometimes partly or entirely paralysed, and then we appreciate the value of that treatment which consists in extracting the greater portion or the whole of the fragments by means of a small and well-constructed lithotrite.—*Lancet*, March 26, 1864, p. 350.

DISEASES OF THE SKIN.

55.—ON THE PHYTOPATHOLOGY OF THE SKIN, AND NOSOPHYTODERMATA, THE SO-CALLED PARASITIC AFFECTIONS OF THE SKIN.

By ERASMUS WILSON, Esq., F. R. S.

No better term than *Nosophyta* has been suggested by any of the phytopathologists who have succeeded Gruby; it expresses the bare scientific fact of the association of a plant-like organism with certain diseases; it commits those who make use of it to no theory; and therefore we adopt it as the title of our present essay.

The *Nosophytodermata* are five in number, namely:—*Favus*, *vel* *Tinea favosa*; *Trichosis*, *vel* *Porrigo tonsurans*; *Mentagra*, *vel* *Sycosis*; *Alopecia areata*, *vel* *Porrigo decalvans*; *Chloasma*, *vel* *Pityriasis versicolor*. These diseases form a natural group, which is distinguished by a morbid alteration of the epidermis and hairs, rendering them friable and brittle, changing their appearance and colour, and causing their exfoliation and fall. The epidermis loses its smoothness, the hairs lose their polish; the former becomes spongy and furfuraceous, the latter become faded, discoloured, and shrivelled, and break off close to the skin, suggesting the idea of being cropped by artificial means; hence the terms, *tonsurans*, *tendens*, *tonsores*, &c., applied to one of these diseases.

Closer observation detects certain differences between them—for example, *favus* and *mentagra* affect chiefly the hair-follicles; *trichosis* and *area* chiefly the hairs; and *chloasma* chiefly the epidermis. *Favus* has the appearance of a yellow flat pustule, often of considerable breadth (two or three lines,) surrounding the mouth of the hair-follicle and hair; *trichosis* is known by the broken state of the hair, which gives an aspect of bareness or seeming baldness to the diseased parts: *mentagra* is a prominent pustule with a hard and often elevated base surrounding the mouth of the hair-follicle and hair, and situated, as its name implies, on the chin, or on the face; *porrigo decalvans* or *area* is a positive baldness of the affected part, often associated with loss of pigment and atrophy of the skin; while *chloasma* is known by its situation on the trunk of the body, by an alteration of the pigment of the skin—which has gained for it its name—and by a loose and spongy state of the epidermis, which exfoliates from time to time in the form of a branny or furfuraceous desquamation, *pityriasis versicolor*, or, as Hardy very appropriately suggests, *pityriasis lutea*.

The general characters of these affections, therefore, so far as *resemblance* is concerned, are, the seat of the disease—namely, the hair-follicles, the hairs, and the epidermis,—and the consequences of the disease—namely, the disintegration and destruction of the tissues involved, the epithelium of the follicles, the epidermis, and the hairs. The *differences* of a general nature are the limitation in chief of the disease to the follicles, to the hairs, to the epidermis; the intensity of the special affection, which is greatest in *favus* and least in *chloasma*; and the complication of the special affection by common inflammation, as occurs in *mentagra*.

[Mr. Wilson then describes the nature and causes of these diseases in his usual masterly way, and lastly, gives us his treatment.]

Treatment.—The treatment of the *phytodermata* offers three indications:—The *first*, to destroy the parasitic fungus; the *second*, to subdue the inflammation which accompanies the growth of the fungus; the *third*, to relieve the secondary or constitutional eruptions which complicate the disease in its advanced stage. The remedies suited to the first of these indications are termed by the French phytopathologists “*parasitocides*,” and with especial reference to the vegetable fungus “*phyticides*.” Bazin enumerates as the chief of the *phyticides*, the oleum picis juniperi (oleum juniperi pyrolignicum, huile de cade), the bichloride of mercury, and turpeth mineral (*hydrargyr subsulphas flavus*). But another, and the most important of the *phyticides*

according to him, is depilation or avulsion of the diseased hairs. The second indication is met by antiphlogistic remedies of the emollient or moderately stimulant class, such as the cold starch poultice, fomentations, cold ablutions, saturnine lotions, the benzoated oxide of zinc ointment, and the ointments of nitric oxide of mercury, or the ammonio-chloride of mercury considerably diluted. While the third indication, the secondary complications of the disease, is to be treated by similar means.

Bazin describes his method of treatment of the tinea as follows:—The head is to be thoroughly cleansed; crusts are to be removed, and the hair cropped close to the scalp; then the surface is to be painted over with the oleum picis juniperi, which, as he states, soothes the skin, renders it less sensitive, loosens the bulbs of the hair, and at the same time shrivels and destroys the fungus. The next day, the head is to be washed with soap, and depilation is commenced; that is to say, every hair is to be removed over the whole extent of the diseased surface. The accomplishment of depilation may possibly require four or six sittings, for the process is too painful to be borne for a long period at a time, and may require to be repeated twice or three times, or even more frequently, before the cure is effected. The operator seats himself in a chair, and places the patient on a cushion at his feet; he rests the patient's head on his knees, and then, with a pair of tweezers, patiently removes the hairs, one by one, or in bundles of two or three, when they can be fairly seized by his instrument. Having pulled out the hairs over a small extent of surface, he brushes it over with a solution of the bichloride of mercury to destroy the fungus, both on the surface and in the patent follicles; and then goes to work again in the same manner, from time to time resting, to moisten the skin with the solution, until he has proceeded as far as the patient can bear.

Four or five hours after this operation, the head is to be thoroughly anointed with a parasiticidal ointment, of which the two following are the best, and Bazin gives a preference to the first:

R. Hydrargyri subsulphatis flavi, 3ss.; olei amygdalæ dulcis, glycerine destillatæ, aa 3ij.; adipis purificati, 3ij.; M. Fiat unguentum phyticidum.

R. Olei juniperi pyrolignei, 3ij.; adipis purificati, 3iiss.; M. Fiat unguentum phyticidum.

On the following day, the washing, the depilation, the painting with the bichloride of mercury lotion, and the anointing with the phyticide pomatum are to be repeated as before, and continued daily, until every hair growing on the diseased portion of the skin, and for a short distance beyond, has been removed. This process is painful, but not, according to Bazin, so painful as the avulsion of healthy hairs; and the pain may be much reduced by drawing gently but forcibly on the hairs in the direction of their implantation in the skin.

When depilation is complete, the head is to be painted over, night and morning, with the solution of the bichloride of mercury, for three days; and, after the third day, is to be anointed, night and morning, with the yellow subsulphate of mercury ointment. Bazin does not mention the strength of the sublimate solution which he employs, but the solution used by Hardy contains one grain of the bichloride to an ounce, and we apprehend that if it were stronger it would produce inflammation and more pain than the patient could bear. The success of the process cannot be ascertained until the hair begins to grow again; and then, if it be unhealthy in its aspect, the operation must be repeated, if necessary, to the third or fourth time.

Hardy's treatment of tinea differs from that of Bazin only in this—that he finds no advantage in the huile de cade, and therefore omits its use; he prescribes the sublimate lotion after depilation, for eight days instead of three; and in the latter part of the treatment, sulphur ointment, containing half a drachm of sulphur to the ounce, instead of the turpeth ointment. We may, in this place, also remind our readers of the sulphurous acid lotion of Dr. Jenner, and the pentasulphide of lime lotion, recommended by Mr. Astley Price, for the destruction of the oidium of the vine; the latter being

an equally successful phyticide, or, at least, remedy, when used to the human skin in these diseases.

Treatment of Favus.—In favus the first step is to cleanse the head, to crop the hair down to the crust, to paint with the oleum juniperi pyrolignicum; then to apply a starch poultice to soften the crusts. When the crusts are sufficiently softened, they are to be gently lifted with a comb and removed, and the oleum juniperi is to be repeated as before. On the following day depilation may be performed, as already described; and in four or five days the operation will be complete.

When the body is the seat of the eruption and the latter is extensive, baths containing sulphur, or the bichloride of mercury, will be necessary; the patient should have them repeated several times; the crusts are to be removed after the bath, and depilation may then be commenced. The process of depilation will occupy from fifteen to twenty days, and, night and morning, the turpeth ointment should be well rubbed into the skin. In favus of the nail, the horny portion of the nail must be scraped until the fungus is laid bare, and then it should be saturated with the sublimate lotion.

After the operation of depilation, the redness of the diseased skin gradually diminishes for about a month; then, there is some reappearance of hyperæmia, a few pustules are seen, and the favus-cups begin to be developed; but they are smaller and more scattered than at first. Depilation is now to be repeated in the same manner and to the same extent as before. The patient is then left for another period of five or six weeks; and if any favus-cups reappear they must be removed, and depilation of the parts where they were produced is to be performed. This is only a partial depilation: and after two complete, and one partial depilation, the cure may be expected to be complete, and no further danger of relapse anticipated. Nevertheless, it is always necessary to watch the patient for a few weeks longer.

Bazin remarks, that if the eruption exists to the extent of five-sixths of the scalp and body, the removal of every hair the patient possesses, whether unhealthy or healthy, will be necessary for the cure; that the operation must be repeated in four or six weeks; and that at the end of another month a partial depilation must be effected. Where there are not more than four or five patches situated on the scalp, depilation of the diseased part and of the sound skin for a short space around will be all that may be necessary. And where there are not more than two or three cups, they may be cured at once, and in the course of a few minutes, by the removal of the crusts and the avulsion of a few hairs.

During convalescence, extreme cleanliness is of the first importance; any formation of scurf or accumulation of sebaceous matter should be carefully washed away, and the yellow subsulphate of mercury ointment applied every four or five days.

Treatment of Trichosis Tonsurans.—The treatment of this form of disease, like the preceding, consists in the performance of depilation, and the use of the phyticide applications. Trichosis of the body or limbs in women and children rarely progresses beyond the first period, and the bichloride of mercury lotion, together with the phyticide ointments, are all the treatment necessary. When, however, as in man, the body is hairy, and the disease is circumscribed, depilation may be practised during the first period, and followed by the plan of treatment laid down for favus; but until the disease is fairly defined, the bichloride of mercury lotion and the phyticide ointments are the only means to be employed.

After the first period is passed—whether the disease be seated on the body or on the scalp—depilation is to be performed in the manner already described for favus. But the operation is more difficult than in favus, on account of the brittleness of the hair, and may require to be repeated five or six times before the whole of the diseased hairs are removed.

The restoration of the skin to its healthy condition is shown by the growth of natural hair; the papillation of the patches subsides, the patches return to the level of the surrounding parts, and the scalp recovers its normal colour

and appearance. The healthy growth of the hair is the best evidence of the destruction of the fungus.

Treatment of Mentagra.—On the face, and especially on those parts of the face where mentagra commonly makes its appearance, avulsion of the hairs may be practised in every stage of the disease. The oleum picis juniperi should be applied in the first instance as directed for favus, and then the avulsion may be commenced at once. Whenever, says Bazin, "Tinea tonsurans has already, for some time, reached its papulo-pustular period, depilation must be performed, even if we be sure that the parasite no longer exists; it is in these cases that the disease yields as if by enchantment to our treatment; a single depilation may suffice; and on this account it is that the cure of mentagra may be said to be easy in proportion to its chronicity." The same author remarks, that much time is often lost in vain attempts to subdue the inflammation and tumefaction of the skin in mentagra before resorting to avulsion of the hairs, under the impression that the inflammatory action would be increased by the operation; but the real agent of irritation is the hairs, which act the part of a foreign body and stimulate the inflammatory process; and the best method of dissipating it, would be to remove the foreign body, which is the cause of all the mischief. After avulsion our remedies perform wonders.

Treatment of Alopecia Areata.—The treatment of area is to be conducted on the same principle as that of the other forms of tinea—namely, the application of phyticides and depilation. Bazin remarks that the puny hairs which are found on the bald patches of area are difficult to remove on account of their weakness, and that repeated depilations are therefore necessary; he also reminds us of the necessity of carrying the depilation to a short distance beyond the limits of the patch into the region of the sound hair.

Treatment of Phytodermatous Furfura.—The treatment of these affections, including chloasma, is, according to Bazin, extremely simple: no internal treatment is called for; the parasitic fungi are situated superficially in the epidermis, and the phytidic remedies already enumerated are all the treatment required; they may be used in the form of lotion, forcible friction, or baths, according to their situation or extent. The treatment commonly pursued by this author is to apply the bichloride of mercury lotion and use sulphurous baths, but he gives the preference to baths containing the hydrargyri bichloridum.

Epitheliophyta.—Carrying out his views of the parasitic operation of the bichloride of mercury, Bazin recommends it as a wash for the mouth in aphtha, to destroy the *Oidium albicans*, in preference to the bichlorate of soda. And upon the same principle he favors the use of the pyroligneous oil of juniper in chronic ulcers.

Observations.—The chief point of novelty in the treatment of Tinea, as advocated by Bazin, is depilation; but this recommendation is far from being new; it was practised by Plumbe, by Rayer; it is the basis of the treatment of the Mahons, and the principle of the notorious "calotte," so long, and we fear at present, in use in France. But the objects of the treatment are different; Bazin removes the hairs because they are the harbour of a parasitic vegetable fungus, which develops seeds, and consequently, as long as it remains, keeps up and extends the disease. Plumbe, Rayer, the Mahons, and the promoters of the calotte, because the hairs are supposed to act the part of foreign bodies and irritants to the inflamed skin. "In old standing cases of favus," says Rayer, "every method of treatment into which the avulsion or removal of the hair does not enter as an element, is incomplete, and unworthy of being entitled curative."

The depilation recommended by Plumbe differed from that of Bazin in being partial; the same objection may be made to that of the Mahons, which operates only upon the loosened hairs; while the calotte is an instrument of the grossest barbarity, tearing out alike sound and diseased hairs, and in a manner the most painful that could be contrived. Bazin's method is painful enough, and to many persons would be insupportable, but every care is taken

to make it as gentle as possible; the skin is rendered less sensitive by the previous application of the juniper tar, and the hairs are withdrawn artistically, no doubt in the direction of the *set* of the shaft, with moderate and steady traction, and to a limited extent at each repetition of the operation. With reference to the rest of the treatment, it differs in nothing from that which has been in common use in this country for a number of years—namely, washings with soft soap, combing and brushing the hair, and the use of mercurial pomatums, of which the nitric oxide and ammonio-chloride of mercury are examples, and tar and sulphur ointments, which in public institutions are highly popular.

With the exception of mentagra, we believe depilation to be wholly unnecessary in these diseases; we believe that they may be successfully cured as they have been heretofore, without depilation. We never find any overwhelming difficulties in the treatment of these complaints; they are tedious, but not remarkably so when properly managed, and we decidedly declare against depilation. Depilation may be, and no doubt is, a great boon in the treatment of tinea in France, but it is worthless in England, where more care is bestowed upon the constitutional treatment of cutaneous diseases.

And what, it may be asked, is the treatment on which we rely for the cure of these diseases? We will state it briefly:—We remove crusts and furfuræ by thorough washing with the juniper tar or petroleum soap, or with a liniment consisting of equal parts of soft-soap, juniper tar, and alcohol. We repeat the washing daily with tepid or cold water, with the double object of cleansing the diseased parts and giving a moderate stimulus to the skin of the head; we comb the head well, brush it if not too sensitive, and night and morning we rub into the entire scalp, but most into the patches, an ointment consisting of one part of the nitric oxide of mercury ointment, diluted with three parts of fresh lard. In milder cases we wash the head less frequently, but we continue the combing and brushing and anointing steadily. A failure of cure is an event that we cannot anticipate and rarely see.

But we do something more: we administer mild tonics; we prescribe a generous diet; we treat symptoms; and, in a case of favus—a disease of the scrofulous diathesis—we have recourse to cod-liver oil and the iodide of iron. Moreover, in certain cases, where no indications of general debility exist, where the nutritive functions seem principally at fault, we administer arsenic, with the most brilliant success. Favus and trichosis capitis are diseases of children and adolescents, and this method of treatment answers admirably with them. In trichosis corporis (*Lichen annulatus solitarius et serpiginosus*) we have for many years been in the habit of prescribing a lotion, or ointment, of the bichloride of mercury; and in chloasma, or pityriasis versicolor, we prescribe ablutions with the juniper-tar soap, sponging with a spirituous solution of the bichloride of mercury in almond emulsion; or frictions at night with one of the diluted mercurial ointments already mentioned, and ablution in the morning with the juniper-tar soap. In trichosis barbæ, or mentagra, we are ready to admit the value and importance of avulsion of the hairs; not, however, as a means of removing a supposed parasite, nor of an irritant foreign body, but as a healthful stimulant to a part in a state of chronic and irritable inflammation.

And this brings us to the question of the use of depilation: that it disposes to the cure of the local disease there can be no doubt. We cannot disbelieve the statements of Bazin that he succeeds in curing these diseases through the agency of depilation; but we do and must disbelieve that the removal of the fungus is the proper explanation of cure. We see in depilation a stimulant, and a valuable stimulant—a stimulant that we ourselves commonly use when we seek to make a black hair grow up in place of one that is white—a treatment that for this purpose we have been in the habit of using for years, and with remarkable success; so that we have been led to regard avulsion as one of our best, indeed our only reliable remedy for producing *deep stimulation of the cutaneous tissues*, for setting up a new action in the papillæ of the hair; as the only remedy, in fact, by which we can reach successfully the fundus of the hair-follicle. And this, in our belief, is

the "methodus medendi" of depilation and avulsion in the phytodermic diseases. It sets up a new action, a healthful inflammatory process in place of a morbid inflammatory process—a process whose natural course is to end in resolution, instead of one whose nature is perpetuity. For morbid cell-genesis it establishes healthy and plastic inflammation and sometimes healthy suppuration, when, as Bazin declares, the fungus is starved or drowned. Even Bazin has recourse to avulsion as a stimulant in old cases of mentagra, wherein the hair acts the part of a foreign body, of a thorn, in the skin, and so keeps up irritation.

Hardy makes the following very practical observation in reference to the treatment of the Phytodermata:—"It will not be sufficient to destroy the parasitic fungi only; we must modify the soil so as to render it inapt to the reception of new germs, and unfavourable to their nutrition. We must give tone to the constitution by means of tonics and bitters, prescribe good food and closer attention to cleanliness, and cut the hair short to admit of the action of the air upon the scalp."—*British and Foreign Medico-Chirurgical Review*, Jan. 1864, p. 199.

56.—ON PITYRIASIS.

By GEORGE NATLER, Esq., Pathological Curator of the Museum of St. Mary's Medical School.

The diagnosis of pityriasis is not difficult. It approaches much in character to psoriasis, from which it may be distinguished by the farinaceous condition offered by the cuticle, that is shed and renewed again with great rapidity. The patches of psoriasis are always more or less raised, which is not the case in pityriasis. Some cases of eczema occurring in infancy, where the colour of the skin is hardly changed, and no vesicles detected, may be mistaken for this disease; but, on close examination, the thin crusts or lamellæ are more disc-shaped, and are neither produced nor re-produced to the extent observed in dandriff. No error is likely to arise from confounding pityriasis with lichen, as the papular nature of the latter, added to its rough surface and situation, will be enough to point out the difference between them.

Treatment.—In pityriasis of the scalp the patient should be directed to have the hair cut moderately short, to use a soft brush, and to wash the head once or twice a week with the yolk of egg and warm water. At night, before retiring to rest, a liniment of this kind should be well rubbed into the roots of the hair:—Nitric oxide of mercury, ten grains; glycerine, half an ounce; cerate, one ounce: or ammonia-chloride of mercury, ten grains; cerate, one ounce. The compound iron mixture of the London Pharmacopœia may be given, or quinine with one of the mineral acids, if the health be disordered. As a rule, at the Skin Hospital arsenic is prescribed in pityriasis capitis; and it may be administered as the liquor of arsenite of potassa. If the disease be dependent on syphilis, then, as in psoriasis, the bichloride of mercury should be given with the iodide of potassium. In general pityriasis, where the skin is dry and perspiration takes places with difficulty owing to some defect in its secreting structure, great benefit will be afforded from the use of glycerine, as mentioned by Mr. Startin in his lectures, or as a bath by boiling two ounces each of glycerine and tragacanth in a pint of water, and mixing this with thirty gallons of the latter; or, again, as a lotion in this way; one grain of the bichloride, half an ounce of glycerine, and three ounces of water. Should pityriasis attack the face, which it is apt to do in young women from exposure to cold winds, the patient may use with advantage the camphor ointment of the Pharmacopœia—ten grains of camphor, ten minims of glycerine, and an ounce of cerate; or, as Dr. Jenner recommends, apply a small quantity of zinc ointment before going out in the open air, and at the same time wear a Shetland veil to protect the face. When pityriasis surrounds the mouth, as in children from constantly protruding the tongue, some olive oil or glycerine should be smeared over the part, and the child prevented from continuing the practice.

I should add, that however useful glycerine is in certain diseases of the skin, no benefit can arise from the use of the so-called glycerine soap, which, from the small amount of glycerine it necessarily contains, is utterly valueless as a remedial agent.

In the treatment of pityriasis versicolor, our object is directed to destroy the parasite, which may be accomplished by various means. Sulphur offers the readiest and most certain mode of effecting a cure. With this view, the sulphur vapour bath may be administered once or twice a week; and I have searched in vain for any trace of the fungus three days after a single trial of the bath. While this remedy is being employed, the patient should apply some mercurial ointment to the affected part before going to bed, as, for example, the red ointment of which I have spoken in a previous paper, and either a weak nitric acid lotion during the day, or one of this form, which is much used at the Skin Hospital: a drachm of borax, half an ounce of rectified spirit, one grain of the bichloride of mercury, and eight ounces of water.—*Lancet*, Jan. 16, 1864, p. 63.

57.—ON BURNS.

By FREDERIC C. SKEY, Esq., F.R.S., President of the Royal College of Surgeons, and Surgeon to St. Bartholomew's Hospital.

In the treatment of burns I have had some experience. Every year confirms my conviction of the soundness of the principle first proclaimed to our profession by Dr. Kentish, of Bristol, about half a century ago—a principle approved, accepted, and all but universally adopted for twenty years and upwards. That principle consisted in the application of stimulants in one or other form as early as possible after the receipt of the injury. Although less popular in 1863, it is not less sound. How many hospital surgeons have subjected these painful accidents to the test of critical inquiry and experiment? How many can truly affirm, "I have fairly tried the two methods of treatment, and I adopt the Carron-oil system?" Of the two systems of treatment which consist of medical or other agents, the one adopts the principle of stimulation, the other soothes. The idea of soothing an irritated surface is, indeed, plausible. To soothe signifies to allay, to calm. What is the agent employed for this purpose—almost universally employed? Carron oil. Ask a man the subject of a burn what amount of relief from suffering he obtains from the application of Carron oil at the expiration of any term from one hour to forty-eight. I believe it neither affords relief nor answers any useful purpose whatever. Its employment is little better than a delusion. Yet it is the almost universal agent used in the coal and iron districts, in which injuries by fire are so frequent and so fatal. The reason why it is so universally employed in these districts may be inferred from the following anecdote. Some years since, while on a visit near the iron works of Dowlais and Merthyr Tydvil, where many thousand men were engaged, I witnessed sundry cases of severe burns; and on my urging on the resident surgeon the value of the opposite principle to that which he adopted in the treatment, he replied to this effect: "If I were to attempt to invade the prejudices of these men, and insist on a change of treatment, my life would hardly be safe from their violence." This is, indeed, valuable testimony. A very common fact in every-day life displays the value of the treatment by stimulants. The smarting pain caused by a burn or scald on the hand is relieved, and, if not very severe, is almost removed, by subjecting the hand to the influence of the heat of a fire. The closer it is held—the more severe the pain caused by the undue heat, the greater is the amount of permanent relief. What is the theory of this? I cannot pretend to give a satisfactory explanation of the phenomenon, but it is not the less true. It is palpable to ordinary observation that if we stimulate a burnt region of the body, or, in other words, if we increase the pain of the part by the application of any

agent—as heat, whether from fire or hot water; or if we stimulate by the agency of turpentine, as recommended by Dr. Kentish, or spirit or stimulant of any description—we relieve the affected part from its pain, and carry it forwards by a rapid stride towards recovery. The greater pain deadens the lesser, and not for the hour merely, but permanently. And what is true in principle on the smaller scale is equally true on the larger. Of stimulants, I know no agent so efficient as a solution of nitrate of silver, which I have for some years employed in the proportion of from ten to fifteen grains to an ounce of water for an adult, and from five to seven grains for a child. This solution applied freely over the burnt surface is followed by the application of cotton wool. In an hour or less the pain decreases, and ere long subsides. I could illustrate the efficacy of this treatment by an endless number of examples, but I will mention one only. Five men were severely burnt by an explosion of gas, and were brought to the hospital. One died immediately; the remaining four were badly burnt about the face, chest, and arms. The face and chest of each man was washed with a solution of ten grains of nitrate of silver; to the arms the celebrated Carron or boiled oil was applied. Twenty-four hours elapsed, and on inquiry whether the patients were suffering pain, each made the same reply: “I am easy everywhere, except in the arms and hands.” The oil was removed, the solution was applied, and relief followed immediately. The solution may be profitably applied at any period, so long as the pain remains.

On the younger members of our profession I most strongly urge the value of the stimulating principle in the treatment of burns and scalds of every description, not only for the relief from suffering which it affords, but for the influence it exerts in abridging the duration of the consequences of the injury and promoting an early recovery. The only exceptions to this benefit are found in the cases of very severe injury which are attended by great destruction of the tissues of the affected parts; but even in such cases relief from pain is always afforded by the application of the solution in or about the strength I have mentioned.—*Lancet*, Jan. 2, 1864, p. 2.

58.—INTERNAL ADMINISTRATION OF BELLADONNA IN CASES OF SEVERE BURN.

By — HUTCHINSON, Esq., Surgeon to the London Hospital, &c.

Experimental physiologists have recommended belladonna for use in the treatment of burns, in the belief that it diminishes that state of the nervous functions under which reflex inflammations are likely to be originated. They assert, on the other hand, that of all remedies opium is the one most powerful in increasing this peculiar state, and that it ought consequently to be avoided. In clinical practice, however, we believe that this opinion is wholly disregarded, and that opium is the form of anodyne most commonly resorted to in these cases. Yet it is generally suspected that the causes of death after burns are, in a majority of instances, connected with reflex inflammations, *e. g.*, ulcers of the intestine, pneumonia, &c. In a series of cases under Mr. Hutchinson's care, in the London Hospital during the last six months, the belladonna treatment has been tried. In some remarks at the bedside of a patient the other day, Mr. Hutchinson stated that he considered the general results to have been fairly satisfactory. He adverted to the extreme difficulty of forming a trustworthy conclusion on such a matter, since these cases are, in their nature, never stationary, but always tend either to improvement or the reverse, and often with great rapidity. If, therefore, the remedy were commenced when the patient was very ill, it might chance to be just at the time when improvement was about to set in; and if, on the other hand, the patient got worse, it might fairly be alleged that the remedy was used too late. If, on the other hand, we should give it in cases in which, as yet, no serious symptoms had appeared, we might again be much led astray, since a great majority of burn cases do well without any special plan of medication.

Mr. Hutchinson stated that the cases in which the remedy had seemed to be most useful, were those of children in whom general febrile symptoms, attended with restlessness, loss of appetite, &c., had set in without any local complications. In several of these, there could be no mistake that the feverish state had passed away quickly and very satisfactorily under the use of belladonna. In no cases had he witnessed any ill results. If the burn itself was very painful, and the patient unable to get sleep on account of the pain, then the belladonna seemed comparatively inefficacious to procure ease, and morphia was far more efficient. As a rule, no opium had been given to the cases treated by belladonna; but in a few, and those chiefly in adults, it had been found requisite to give an occasional night dose. Possibly more benefit might have been obtained had the administration of the belladonna been pushed to larger doses. The usual dose given had been a third of a grain three times a day. In speaking of the less frequent results of burns, Mr. Hutchinson mentioned a recent case in which acute inflammation of one hip joint, followed rapidly by dislocation, had occurred in a child who had been severely burnt on the arm and chest. He was in doubt whether to regard it as a reflex inflammation, or as a consequence of pyæmia.—*Medical Times and Gazette*. Jan. 1864, p. 10.

59.—ON THE TREATMENT OF ANTHRAX BY PRESSURE.

By MAURICE H. COLLIS, Esq., Surgeon to the Meath Hospital.

[Anthrax is a disease of the areolar tissue, the skin only suffering secondarily.]

It is essentially an inflammation of dense fascia, in which the superficial areolar tissue is implicated, as in furuncle, and also the deep, as in phlegmonoid erysipelas. There is along with, and resulting from this threefold inflammation, a copious exudation of lymph, which agglutinates the inflamed parts into an almost homogeneous yellowish-gray mass, destroying the vessels, and of necessity stopping the circulation; hence a large and rapidly increasing core results. So peculiar is this core that Nélaton classes it among false membranes, similar to those which form on the surface of serous membranes. There is some show of truth in this notion of Nélaton's, but it is only part of the truth, and not the main part either. The mode of extension of anthrax much resembles that of phlegmonous erysipelas—sub-facial exudation goes on, cutting off the vascular supply to fascia, and, at the same time, exudation goes on superficial to the fascia, cutting off the vascular supply to the skin. This double exudation produces two sets of physical signs; a broad elevation, equal in extent to that of the deep exudation, with livid or dusky red hue of skin, and hard œdema, extending somewhat beyond that limit, points to deep sub-facial inflammation; while the numerous small furuncular openings, which, running into one another, discharge small quantities of healthy pus, long before the core is loosened, are evidences of more superficial inflammation. The brighter red of the skin round these openings is another sign of their being akin to simple follicular abscesses; for though not so bright as in healthy phlegmon the color is less dull than it is in the outlying parts of the tumor. This superficial inflammation is of less extent than the deep, for the simple reason that its products get vent more quickly. The skin only has to be perforated, whereas in the other case, deep fascia and skin must both give way, and the fascia only gives way by becoming a dead slough, and by being cast off by a process of ulceration along its edges. This is a slow process, during which exudation advances, and the diseased action extends its limits.

Dublin surgeons, as a rule, have been in the habit of treating anthrax by the crucial incision of Abernethy. Some advise that the incision should reach from sound skin to sound skin. Even Mr. Ledwich, following the stern surgery of Tagart, and undeterred by the fatal cases he himself has quoted, gave in his adhesion to this practice. I have long been satisfied that *this length of wound was a needless increase of risk and suffering to the*

patient, and that the mere extent of a crucial incision was of little consequence in comparison with its depth.

If not deep enough to allow free vent to the dead core and matter, an incision is worse than useless—it is positively mischievous, and causes the disease to spread. To be deep enough it must penetrate the core, and tap the inflammatory exudation and purulent dépôt which lie beneath it, and which would not otherwise find a vent until the core had separated. When making the crucial incision it is easy to know if we have gone deep enough for our purpose. Should there be still much vitality in the integument, which we have cross-cut, the wound will gape widely, and the point of each angular flap will curl up considerably. Even in advanced cases, where the skin is much undermined and thinner, and where it has not sufficient elasticity to curl up or retract, we shall be able to know if we have gone deep enough by lifting up the angles of the flaps in a forceps and feeling if they are well loosened from the parts underneath. If they do not yield at once, and freely, we must cut deeper until we reach the subjacent muscle. The crucial incision then, if adopted, must be deep to be of use in checking the spread of the disease and facilitating the repair of the affected part.

But it may be well to inquire if an incision is always, nay, if it is often required. It is surely in accordance with the merciful progress of modern surgery that we should, at least, pause now and then in any practice which has become routine, and ask if it be never right to depart from it.

I shall not here enter upon the treatment of anthrax by the more painful plan of the potential cautery, which is wholly inapplicable in the early stages of the disease, and which cannot, at any stage, be supposed to check its spread. I would rather venture to inquire if any painful application or treatment is required, and whether we may not, in the great majority of cases, bring about a favorable issue without giving pain, and with greater rapidity than either knife or caustic can effect. Under the advice of Mr. Paget, whose calm judgment must carry weight with all intelligent surgeons, and encouraged by his example, I have not, for two years and a half, used either knife or caustic potash in anthrax; and with the results I have every reason to be satisfied. I do not say that I shall never cut an anthrax or use caustic potash to detach the sloughs—but I shall simply give examples of various forms and degrees of the disease as treated by me without either: and, I think the results authorise me to conclude that the cases in which it is necessary to resort to either are rare indeed.

The first case in which I tried the effect of a milder plan of treatment was one which most people will allow to have been a legitimate case for it. It was a large anthrax between the scapulæ, occurring in an old and feeble man. It had been left to nature, and had spread until it reached the size of a small plate; along the centre was a brownish slough four and a-half inches long, and three and a-half wide. This slough was still firmly adherent, the line of demarcation having just commenced to form. Under this cutaneous slough, and raising it high above the level of the healthy skin, lay a boggy mass of dead fascia, areolar tissue, and pus, which, as yet, had no vent; but it was evident that the fascial slough was sufficiently detached to allow the subjacent pus freely to come forward beneath the skin. Hence, the anthrax had ceased to spread; yet all round the slough was the livid and hard margin, still the seat of great pain, and quite capable of carrying further, upon the least provocation, a gangrenous inflammation.

I immediately applied a large plaster of emplastrum saponis cum opii, spread on wash-leather, with a crucial incision in the centre of the plaster, corresponding in situation with what would have been, under ordinary circumstances, the crucial incision in the anthrax. The next day the swelling round the slough had sensibly lessened, and had become of a healthy red; the pain had completely disappeared; some discharge appeared at the margins of the slough; this increased from day to day, and the slough separated much as it would under any other circumstances. The plaster was renewed from day to day, and the cure was completed in less than a month, which, for *so large an anthrax in a feeble old man*, was as much as could be expected.

This case showed that anthrax will sometimes stop spreading without the surgeon's help, even in old broken down persons. It also shows that support to the capillaries will relieve the pain of anthrax, as is ably pointed out by Mr. O'Ferrall, in the fifth volume Dublin Hospital Gazette. In that paper Mr. O'Ferrall speaks highly of the treatment of anthrax by pressure, but, as it appears to me, without venturing to carry out his principles to their full and legitimate conclusion; he does not seem to contemplate the use of pressure alone apart from the knife. His remarks, however, on the results of pressure after incision, in a case of his own, are of much importance. In that instance the anthrax had been freely divided by the crucial incision; yet, it had steadily spread, unchecked either by the general use of wine and bark, or by the knife, followed by a free use of nitrate of silver: yet, no sooner was support afforded by the firm application of soap plaster, spread on thin leather, than the disease began to diminish, and all suffering ceased. Mr. O'Ferrall's words are:—

"The effect of pressure was immediate and remarkable. The morbid sensibility which caused the patient to shrink from manipulation was at once diminished by well regulated pressure. The following day the other phenomena of the disease—hardness, swelling, and dusky redness, the results of capillary congestion with infiltration, occupying an area of one inch and a-half—had entirely disappeared. Nothing could be more evident than the utility, in this case, of the treatment of anthrax by pressure."

After trying pressure by sedative plasters, in a number of patients, confined to bed, and supplied with good diet and other comforts, I determined upon attempting to treat the disease without such aids in order to test the plan of treatment.

I selected a man of blanched aspect, prematurely old-looking, and with all the marks of poverty about him. This man had two anthracoses—one on the point of the right scapula, of large size, and a smaller one in the axilla, near the scapula. The large one was about four inches by three in diameter, as regards the central boggy portion, with a livid margin, a couple of inches wide, all round. The small one, more prominent, was also more advanced, although later to appear. The core was beginning to separate in it, and it had ceased to spread. The larger one was still spreading—it was the seat of deep and burning pain, and had not commenced to open spontaneously. I strapped both with spiral strapping, covering the entire of the larger, and all but the centre of the small one. Not having soap plaster with opium, at hand, I used common adhesive plaster. In twenty-four hours the improvement was marked. The pain had lost its burning character, the swelling had decreased, the lividity of the centre part was changed for a healthier red, and the edge of the outer margin was paler. The improvement continued from day to day; a small central opening gave vent to a good deal of healthy pus; and in ten days not only was the core out completely, but the cavity from which it came was mostly healed up; and in three weeks he was well. I gave him a little bark during this period. He had no means to enable him to get good food or stimulants, and continued as an extern all the time.

From these cases, to which many others might be added, it is plainly evident that anthrax may be treated sometimes without incision. It is, I think, clear enough that we may pause over each case, and consider if it be necessary or advisable to resort to the knife. For my own part I am satisfied that, as a rule, anthrax need not be cut. I do not wish to be dogmatical, or to lay down an absolute rule that the crucial incision is to be entirely abandoned, but I am entitled to ask that it should not be held to be a *sine qua non*.

The question may be asked, how pressure acts. Mr. O'Ferrall has well answered this. He states that the capillaries in anthrax are in danger of losing their vitality under the severity of a gangrenous form of inflammation, and that the support of even pressure enables them to resist the destruction which menaces them. This is, no doubt, the explanation. In practice we find pressure answer, let the explanation be what it may.

I have observed that as soon as the parts get support, the extension of sub-fascial exudation ceases. This is the natural result of giving support round

the margin of the inflamed part. The efforts of the matter to get vent are then directed towards the surface, and the necessary sloughing and ulcerative processes are more rapidly performed.

I have also observed that the core is more extruded or pushed out than where incisions have been made. In the latter case we have often to pull at the core, and to dress the wounds with terebinthines and other stimulating dressings before the sloughs separate. This has never been necessary where pressure was used. The core came out generally in one mass, and a healing process seemed to have been going on behind it, so that the subsequent closing up of the cavity was rapidly effected. I may add that I have frequently used the soap plaster with opium, in common furuncle, and in *acne rosacea*, with the best effects. It checks the suppuration of furuncle if applied in time, and always relieves the pain. In *acne* it seems to resolve the hard exudation, and to promote a discharge of a drop or two of healthy matter. This has been specially the case in the very chronic form of *acne*, which would otherwise remain for weeks itchy and sore, neither disappearing nor suppurating.

Pressure is not to supersede appropriate internal treatment, of which, if I have said little in this paper, it is not to be supposed I am neglectful.—*Dublin Quarterly Journal*, Feb. 1864, p. 74.

60.—ON MALIGNANT FIBRO-CELLULAR TUMOUR.

By Dr. A. B. BUCHANAN, Physician to the Glasgow Dispensary for Skin Diseases, Royal Infirmary, &c.

Two divisions of tumours are in common use—one into *innocent* and *malignant*, which is best adapted for the practical physician; the other into *homologous* and *heterologous*, which is best adapted for the pathologist, and which is, on the whole, the more scientific and precise. A *homologous tumour* is one, the cells of which are identical with, or only slightly differ from, those normally present in the tissue in which the tumour occurs; as in the familiar case of a fatty tumour developed in the areolar tissue. A *heterologous tumour* is one, the cells of which are quite different from those of the tissue producing them; as when epithelial cells are developed in an internal organ, and without connection with any epithelium. At the same time the division into innocent and malignant possesses obvious advantages; and fortunately both may be retained without causing much confusion. In fact, as a rule, a homologous tumour is innocent in its character, and a heterologous malignant. It is only necessary to bear in mind that there are some exceptions; because the *heterologous nature* of a tumour is *only one of the characteristics of malignancy*. In a malignant tumour or *cancer*, using the term in its widest sense—1st, The cells do not generally resemble in form those of the tissue in which they occur; 2nd, They do not generally resemble one another—as pathologists say, they are *indifferent*; 3rd, Whether these characters apply or not, they tend to propagate themselves indefinitely, and in great measure independently of the surrounding tissues, which they infiltrate without discrimination; and 4th, In a malignant growth there is a tendency to local fatty degeneration of the newly formed tissue, which on a free surface produces ulceration. Hence there are certain homologous tumours which are malignant or cancerous; and fibrous and fibro-cellular as well as glandular tumours, although not heterologous like a true carcinoma, may be divided into the innocent and the malignant. In our case the tumour is homologous in form, but malignant in its mode of development. It is even partially heterologous in form, where it has attacked the muscular tissue; but still it is essentially homologous. It is an unlimited growth, according to the theory we have regarded as most probable, of cellular elements belonging to the areolar connective tissue, unaccompanied by a proportional increase of the intercellular substance; and accordingly we have named it a *malignant cellular fibroma*, or, to avoid all pedantry, a *malignant fibro-cellular tumour*.—*Glasgow Medical Journal*, April, 1864, p. 57.

61.—ON THE TREATMENT OF ENLARGED BURSÆ AND GANGLIONS.

By FREDERIC C. SKRY, F. R. S., President of the Royal College of Surgeons, and Surgeon to St. Bartholomew's Hospital.

The bursa in front of the knee-joint is situated partly on the lower half of the patella, and partly on the tendon of the quadriceps muscle, commonly called the ligamentum patellæ. When diseased, it exhibits the following characters: It may be small or large in size, varying from that of the half of a small apple to the size and form of a large orange. The swelling may be hard or soft, composed of thick walls of lymph, with a small central cavity, forming a mere cleft or fissure, or more commonly consisting of the burs adilated by a collection of serum or pus. It may be active and painful, or chronic and painless. In both cases it is an evil and an inconvenience, and demands the best resources of surgery for its cure. The subjects of this disease, on applying for hospital relief, state themselves to have been under treatment for weeks or even months. The treatment in question resolves itself into two varieties—first, by the repeated application of blisters; second, by that of tincture of iodine. Both are inoperative, for at the expiration of many weeks the disease triumphs. All the above varieties of bursal disease are readily amenable to the influence of a moderately thick silk thread passed through them. The effect of the thread is the destruction of the bursa, whether composed of solid walls or fluid contents, and the formation of an abscess. The period required for this conversion varies from three to ten or twelve days. The presence or the immediate advent of matter is indicated by pain in the swelling and by the existence of a red halo around the openings made by the needle. When this sign is *fully* established, the thread may be withdrawn. The bursa is now and for ever obliterated, and we have an abscess in its place, identical with, and amenable to, the same treatment as an abscess in any other place.

The more chronic and solid varieties pass more slowly into suppuration. The more acute cases, when accompanied by redness and pain, require watching, and the early removal of the thread.

Adventitious bursæ, called GANGLIONS, presenting on the back of the wrist, the dorsum of the foot, and elsewhere, may be successfully treated if the contents be *entirely* evacuated; the opposite walls being maintained in absolute contact, will unite, and the ganglion be obliterated. The operation may be effectually done with a common lancet, but will fail if any, the smallest portion, of the contents remain behind. It will also fail when any portion of the cyst has forced its way underneath a tendon. A thick pad of lint applied over the cyst, and forcibly compressed by means of good plaster and a roller, will effect a cure in forty-eight hours in most cases.—*Lancet*, Jan. 2, 1864, p. 1.

62.—ON RANULA.

By FREDERIC C. SKRY, Esq., F.R.S., &c.

Opinions differ as to the seat and the cause of the formation. On one occasion I extracted a small portion of calcareous matter from what I presumed to have been the orifice of a duct, in a case of ranula, by the removal of which the disease was cured. The practice of laying open the cavity, and applying nitrate of silver to the interior, is adopted by many surgeons; but I have seen the disease return after the adoption of this remedy, and it is a somewhat violent remedy for so slight a disease. A thread will cure it quickly, and without pain or inconvenience. The silk should be passed through *the middle* of the cavity, otherwise the absorption of the contents is so rapid, and the adhesive process so active, that a small residue of the cyst will escape, as it were, from the thread, which occupies the situation of the former disease, now reduced to very small dimensions. The first thread should be *removed*, and another introduced through the remaining part of the cyst.

The large examples of ranula are rare. Commencing in the sublingual region, they extend down the side of the neck, presenting a rounded prominence of considerable size; the surface is uniform, and the skin not discoloured; the contents are obviously fluid. The portion of the cyst within the mouth is not unusually large; but the pressure of the two fingers readily detects the identity of the two swellings. In these large examples the influence of the thread is equally efficacious as in the ordinary ranula. It may be passed by means of a long needle from the mouth to nearly the lowest part of the projecting cyst and brought through the skin of the neck, and the ends tied together, the upper end being brought through the mouth. The lesser ranulae are thus curable often in a few days; the larger require from fifteen to twenty days.—*Lancet*, Jan. 2, 1864, p. 2.

63.—ON CHRONIC ULCERS.

By FREDERIC C. SKET, Esq., F. R. S., &c.

The more chronic the ulcer, the larger its size, the more aged the subject, the more remarkable is the influence of opium in effecting its cure. Let a case be selected for experiment of some twenty years' duration, which has exhausted the patience of various medical attendants, as well as the remedies employed by them for its cure. Treat such a case of chronic ulcer of the largest size, having a pale flat bloodless base, a high mound of lymph around it covered by unhealthy integument, the sore pouring out a large quantity of watery ichor, saturating the linen, stockings, and other appliances—I say select such a case occurring in old age; give such a man ten or fifteen drops of tincture of opium night and morning, leave his bowels alone, and observe the base of the sore in five or six days: it will exhibit a number of minute red points, which, daily increasing in number, will rise up in the form and identity of healthy granulations, and cover the entire surface of the ulcer. Contemporaneously with the gradual elevation of the base of the ulcer is the descent of the surrounding eminence and the commencement of the process of cicatrisation. If I desired to select an ulcer, on behalf of a student, with a view to illustrate the character of perfect granulations as they appear in a thoroughly healthy example, I would select an ulcer which had been treated by opium in preference to any other. If it be supposed by any man having a limited experience in the employment of opium that any evil to the constitution attaches to the use of that valuable agent, I can only reply that its salutary action on the ulcer is obtained solely through the healthy influence it exercises on the constitution. Judiciously employed, no drug in our Pharmacopœia is more innocuous.—*Lancet*, Jan. 2, 1864, p. 2.

DISEASES OF THE EYE AND EAR.

64.—ON THE DISEASES OF THE LACRYMAL APPARATUS.

By GEORGE CRITCHETT, Esq., Surgeon to the Royal London Ophthalmic Hospital.

[In the first place it is essential that the balance between the amount of tears, and the capabilities of the tubes in their healthy state to carry them off, be preserved. There must be no undue amount of tears, and there must be perfect patency of the canaliculi and nasal duct, and the puncta must face inwards upon the surface of the globe.]

We may first direct our attention to the abnormal conditions of the puncta and of the canaliculi. The puncta are liable to fail in the due performance of their duty from errors in position and from changes in their structure. We have already stated that in the normal condition the punctum lies in con-

tact with the globe, and that such a position is an essential element in the proper performance of its function; but we find that it is liable to displacement, and that a very slight deviation from the normal position is sufficient to mar its efficiency—so slight as to escape observation unless carefully sought for. If the lower punctum presents upwards, so that the opening can be seen without everting the lid—a condition that is frequently produced by chronic ophthalmia—it will no longer perform its function. Or, again, the punctum may be pushed away from the eye to a greater or less distance: this I have observed as the result of hypertrophy of the inner caruncle, which mechanically pushes the inner angle of the lid away from the eye; or it may result from thickening of the lower lid and of its mucous lining. It sometimes occurs that in old cases of trachoma and chronic ophthalmia with extensive eversion of the lids, the puncta present directly forwards on the cheek, and in a position where their presence would hardly be suspected, and where they become so changed and concealed that they can only be discovered by an experienced eye. Again, the puncta may become altered in their condition. Thus the delicate mucous lining may become slightly swollen and villous, and may thus mechanically obscure the opening, and fill it up so as to unfit it for the performance of its function. In some of these cases it is difficult to find the opening, more particularly if it be both displaced and choked up. Or, again, the fibro-cartilagenous opening may be contracted, so as scarcely to admit of the finest hair. Sometimes the opening of the punctum and the delicate membrane immediately surrounding it presents a white, greasy aspect, and seems to be changed into a thin cuticle; it may also be raised up into a papilla; these changes prevent the tear from flowing into the sac. The entire canal may be narrowed; or it may be closed at one point; this most frequently occurs at the point where the canal opens into the sac; though if it result from wound, it may be found in any part. These changes seem to depend upon old ophthalmia, extending to these delicate parts; producing at one time a granular and villous state of the mucous membrane, at another a thickening and contraction of the submucous tissues, and stricture, as the result, just as we find in stricture of the urethra. It is possible that an acrid state of the tears may in some cases be an exciting cause, and long disuse of the canals would also seem to produce stricture. Again, small calculi are occasionally met with, filling up and enlarging the canal. I published a case of this kind that I met with in private practice in the year 1853, in a quaker lady aged about sixty. I may observe that these changes that I have described are most frequently met with in the lower punctum and canal, which seem to play a far more important part in carrying off the tears than the upper.

The symptoms vary much, according to the case. Thus if it be a case of simple displacement, or of some mechanical closure of the punctum or canal, the chief inconvenience is the watery eye; though this is often complicated with a sense of weakness and difficulty in keeping up a prolonged use of the organ. I have, however, met with cases where the inconvenience seemed to be very slight.

In those cases where stillicidium is complicated with and partly caused by ophthalmia tarsi, with its concomitants, eversion, thickening, and excoriation, the constant accumulation of tears in the palpebral fossa, the overflow of the tears, their acrid quality, and the wet condition in which all the parts are kept, tend materially to aggravate this disease, and to prevent the ordinary remedial measures from exerting a beneficial influence. It frequently happens that if the tears can be restored to their natural channel an important step is taken towards the accomplishment of a cure. I may mention here that I have met with cases in which the central part of the lower lid has been not only separated from the globe, but depressed to a level below the situation of the puncta; this creates a low-water level, into which the tears gravitate even when the puncta are fit to perform their functions. In the groups of cases that I have described, in which the puncta are either displaced or obstructed, or both, the sac and duct remain unchanged, and are fit to resume their functions even after many years of disuse. I have met with some strik-

ing cases in proof of this fact, though in some other cases long disuse seemed to have exerted an unfavourable effect upon the sac and nasal duct.

Until a comparatively recent period, these causes of epiphora were unrecognised, and their treatment consequently unattempted. In the year 1851 Mr. Bowman published a paper upon this subject, explaining both the pathology and treatment of these cases. The latter we may now proceed to consider.

In those cases in which there is simple displacement of the punctum, without any change in its structure or in that of the canal, the object is either to restore it to its natural position, or to convert the canal into an open drain so as to carry off the tears as they collect in the lacus lachrymarum at the inner canthus. In cases where the lid is pushed away by an enlargement of the caruncle, I have removed a portion of this with a good result; and in cases where the displacement was evidently due to temporary swelling of the lid, I have waited for its subsidence. But in the greater number of cases it is desirable to lay open the canal, as first suggested by Mr. Bowman. This little operation, simple as it may seem, is not altogether devoid of difficulty; it may either be performed with a fine lancet-pointed knife and a little director, or with a fine pair of scissors, or by means of a fine probe-pointed narrow bistoury. When the director and knife are used, the lid must be put on the stretch with the ring-finger of the left hand; the director must then be introduced with the right hand, and placed and held between the finger and thumb of the left, horizontally, so as to straighten and tighten the canal; the point of the knife is then introduced into the groove, and the canal is slit up. When a patient is timid, and the orbicularis muscle is put into strong action, and there is no assistant, this manœuvre is not always very easy, and it requires a careful attention to these combined movements to accomplish it. If scissors be employed, they must be fine and nearly pointed, the extreme points rounded off to prevent them from becoming entangled and lacerating the mucous lining of the canal; one blade of the scissors may be easily passed along the canal as far as the caruncle, whilst it is held in the same position as when the director is used, and then with one rapid snip the canal is laid open. It is certainly more easily done in this way, and I usually adopt it in all cases where the punctum and canal are of the normal size, and are merely displaced. If the puncta are much contracted or much displaced, and concealed by a villous condition of the conjunctiva, there is often considerable difficulty in discovering the opening, and when discovered there is further difficulty in passing any instrument into the canal. Under these circumstances, I have found that a very fine director or a fine probe-pointed bistoury is more convenient than scissors. It is very important not to wound the mucous lining of the canal, except at the part where it is laid open, otherwise a traumatic stricture or closure may be produced that permanently obstructs the passage. After this has been done, it is important that the case should be seen for a few times at intervals of two or three days, and that care should be taken to prevent the reunion of the divided edges of the canal until each edge has healed. The passage of a fine probe will suffice; and if union has taken place, it readily yields before the probe. In some cases I have observed the tendency to close up very strong, and a gradual contraction to occur until the slit becomes very small, and this has occurred after repeated divisions. I have also observed the outer half or two-thirds of the canal join up, and a fistulous opening remain at the inner canthus which has sufficed for carrying off the tears. It generally happens that where displacement has been the only abnormal condition, this operation effects a perfect cure, allowing the tears to flow down the open gutter that has been thus permanently formed. Occasionally, however, I have found that the eversion is so considerable, owing to the thickened and swollen state of the lower lid and its inner lining, that even the canal, when laid open, remains everted, and the tears do not reach it, but still flow over. Under these circumstances I have been in the habit of seizing a portion of the posterior wall of the canal and snipping it out with scissors, thus effecting the treble objects, of drawing the canal more inwards towards the caruncle, of forming a reservoir

into which the tears may run, and of preventing any reunion of the parts. This plan may be adopted in cases coming from a long distance, and returning into the country immediately, with a view of preventing a reunion of the divided surfaces.

Of all the causes of stillicidium which we have to treat, these give the most certain and the most triumphant result. I have known cases in which the condition had existed for many years cured in a few days. When the punctum is closed or the canal strictured, the treatment becomes more complicated. Where it is very much everted and concealed by a villous state of the mucous membrane it is difficult to find the aperture. A lens will often assist in this, and by trying with the fine director it may generally be discovered and laid open. When the canaliculus is converted into a permanently open gutter, if the tears still flow over, it is a proof that obstruction exists at some part of the little mucous tube. The situation of stricture is generally where the canal opens into the sac. This can be ascertained by passing a fine bulb probe in the direction of the canal towards the sac—that is, inwards and slightly upwards. As soon as the point of stricture is reached an elastic resistance may be felt, and as the probe is pushed on, the parts round it may be observed to move with it; whereas if the probe pass into the sac, it is brought at once against the firm, unyielding inner wall. This is a matter of considerable practical importance in determining whether or no there be a stricture. It is often a matter of difficulty with those unaccustomed to these delicate little manœuvres to ascertain if the probe has entered the sac. Attention to the symptoms I have just mentioned will greatly facilitate this point. If a stricture exist in the lower canaliculus, I always lay open the upper and try that in a similar manner, and if it be pervious throughout, it will generally suffice to carry off the tears. If a permanent obstruction to the entrance of a fine probe into the sac exists in both canals, the case assumes a more complicated and difficult character, and the result of treatment is sometimes doubtful and disappointing. If the patient experience but little inconvenience from the overflow of the tears, and if the necessity for wiping the eye occur at long intervals, I sometimes leave matters *in statu quo*. If, however, the patient be anxious for further relief, a broad, lancet-pointed needle, guarded, must be passed along the canal as far as it can be carried; then, as soon as the point of stricture is reached, the sheath must be drawn back and the point pushed on into the sac: its direction may then be changed so as to pass it perpendicularly down the nasal duct. After the withdrawal of the canular needle, a probe must be passed through the opening that has just been made into the sac and down the nasal duct. Some difficulty is sometimes experienced in passing the probe through the opening that has been made in the outer wall of the sac, but with care and perseverance this may generally be accomplished; if not, the opening made by the needle must be enlarged. It is important that a probe should be frequently passed into the sac and down the nasal duct, at intervals of two or three days, so as to prevent the reclosure of the opening into the lachrymal sac. It is this tendency to reclose that constitutes the difficulty in the treatment of these cases, and that sometimes exhausts the patience both of the surgeon and the sufferer. I have observed that where this form of obstruction has existed for several years, a depression may be noted in the skin over the sac. This latter seems shrunk, and its walls collapsed and fallen together and dry, having lost much of its mucous character. This change, where it exists, still further complicates and impedes the restoration of a permanent canal for the passage of the tears.

[Previously to the introduction of Mr. Bowman's plan of treating obstruction of lachrymal canals, no satisfactory treatment was known. Much ingenuity had been expended and in most instances wasted on the subject. There seems to be a strong analogy between stricture of the urethra and stricture of the lachrymal and nasal ducts, and probably the only reason why dilatation of the nasal duct was never tried before, was the inaccessibility of the inlets of the lachrymal sac.]

In the Ophthalmic Hospital Reports of October, 1857, Mr. Bowman showed

that the small fibro-cartilaginous aperture at the commencement of the canaliculi was in reality the only firm, contracted, undilatable part of the passage, and that when that ring is divided, a loose membranous channel is discovered that admits of some distension, and of the passage of a probe of moderate size, about the twentieth of an inch in diameter, into the sac. This valuable suggestion at once placed the treatment of lachrymal obstructions nearly on a par with stricture of the urethra. It must be admitted that the delicacy and minuteness of the parts concerned, the abruptness and angularity of the curve at the point where the canaliculi join the sac, and the osseous boundaries of the duct, throw the balance of difficulty on the side of contractions and morbid conditions of the lachrymal passages; but, at the same time, experience now abundantly shows that many of these cases are capable of permanent relief, and even of complete cure, and that in nearly every instance important benefit may be obtained. In a disease presenting such varied modifications and changes of condition and structure, it would be unfair to expect a restoration in all cases to the normal standard and function. Nevertheless, very much can now be done, even where all looks most unpromising.

In order fully to explain the method of treatment that is best suited to each stage of this disease, I propose in the first place to consider the various stages of the operation of probing or catheterising the nasal duct in an ordinary case of obstruction of that part, and the subsequent proceedings necessary for effecting a cure. I will next consider the principal difficulties that are liable to occur, and the complications that arise; and lastly, dwell briefly upon those cases in which the morbid changes are too extensive to admit of permanent relief by this simple method, and in which a more severe and radical plan of treatment seems to be indicated.

We will suppose, in the first place, that we have an ordinary and average case of nasal duct obstruction, with the sac somewhat enlarged and thickened, and secreting a glairy, mucous, or puru-mucous fluid, which, on making pressure, escapes through one or both puncta, and cannot be made to pass down the nose. The first step of the operation of catheterizing the nasal duct, is the same as in those cases of displaced puncta, which I have described in my first lecture on this subject, and it may be performed in the same way. The canal having been straightened and tightened by drawing the lower lid slightly downwards and outwards, and fixing it with the finger against the lower margin of the orbit, a fine pair of scissors, with the points slightly rounded, may be employed; one blade may be introduced into the punctum, and passed along the canaliculus as far, or nearly as far, as the caruncle, and then with one rapid snip the punctum and a portion of the canaliculus is laid open. This is the quickest and easiest method of effecting the operation. Other plans are sometimes adopted. A fine grooved director may be introduced through the punctum and along the canal, and then, the parts being drawn out firmly, a sharp narrow triangular knife may be passed along the groove. This plan is preferred by some because the canaliculus can be divided more freely and to a greater length. It is even recommended that the director should be passed into the sac, and that a long narrow knife should be carried on into the sac, so as to facilitate the subsequent passing of the probe down the nasal duct. It is, however, only under peculiar and exceptional circumstances that such a proceeding is desirable. It endangers a wounding of the floor of the mucous canal, and the formation of a traumatic stricture. A mucous membrane may be regarded as a very sacred thing; when once injured or destroyed, its place cannot be supplied. No efficient substitute can be found; and although some false passage may be formed, it never can retain the properties of the original mucous tube. This is especially true as regards the delicate aqueducts that convey the tears. Great care, gentleness, and patience are required in the performance of the little operation I am now describing. Another method of opening the canaliculus is to introduce a very fine probe-pointed bistoury, and by a slight sawing upward movement lay it open. In practice I generally employ scissors.

The next stage of the proceeding is the passing the probe. Previous to

doing this, it is well to observe whether the contents of the sac regurgitate through one or both puncta; and if only one, whether it be the upper or lower. If the upper, as is not unfrequently the case, it should be laid open in a similar manner to the lower. It is, perhaps, rather more difficult to accomplish than the lower, especially when the patient is nervous and irritable; but a little practice gives the necessary dexterity. As we might *a priori* expect, it is generally found that the canaliculus that permits regurgitation most readily, admits a probe most easily. It is better to be provided with a set of probes graduated of different sizes. Mr. Bowman's set of probes represent a graduated scale of six sizes. Mr. Teale, jun., of Leeds, in a paper which he published on this subject, recommended the use of bulbed probes made upon a similar graduated scale. I usually employ the bulbed probes; I think they pass more readily, and are less liable to lacerate the mucous lining, or to get into a wrong direction, and make a false passage.* I usually commence with a probe of medium size. Whichever canaliculus is selected, it should be drawn outwards firmly, so as to form a straight tunnel along which the probe may pass. The probe must be carefully introduced into the loose membranous canaliculus, and then gently glided on into the sac; care being taken, as it passes from the open into the closed part of the canal, that it does not pass into the loose cellular tissue, and thus wander away from the sac and form a false passage. If it passes smoothly on till it strikes against a firm resisting wall, it has entered the sac. The direction of the probe up to this time must be inwards and slightly upwards, if it be the lower passage; if the upper be selected, then downwards and inwards. As soon as the probe has entered the sac its direction must be entirely changed. The point of the probe resting in the sac, the handle must be moved in a circle until it is brought on a line with the nasal duct; it must then be gently pressed downwards so as to enter the nasal duct. This requires care and management. If it be felt to strike against some hard resisting medium, it has failed to enter the duct, and is in contact with the bony wall. It must then be slightly withdrawn, its direction must be changed, and it may be partially rotated so as to bring the bearing upon various points until it yields, or gives only an elastic resistance which a little pressure will overcome. The strictured point once passed, the probe will generally pass very readily down to the floor of the nose. This once accomplished, a very important step towards cure has been gained. It will generally be found that the contents of the sac can be pressed down the duct, instead of regurgitating; and the patient should be directed to empty the sac frequently, and if possible, downwards into the nose. This facility in emptying the sac is a great advantage in the restoration of parts to a healthy state. The probe that has been passed may be left in for a short time, and in three or four days the operation may be repeated, and an attempt may be made to pass a larger size. Gradually the sac will resume its normal dimensions, the secretion from it will cease, the tears will flow in the right direction, and the case will be relieved. A tendency, from time to time, to relapse is not unfrequent; but an occasional passage of a probe will set everything right again.

We may now consider the principal difficulties that are liable to occur, and the complications that arise in the treatment of these cases. The first condition of this kind to which I would direct attention is a contracted, unyielding state of the canaliculi. Unless this can in some way be overcome, it seriously impedes the subsequent treatment of the case. We may endeavour to meet the difficulty, either by trying to stretch and dilate the passage, or by laying its entire length open upon a director as far as the sac. The dilatation may be effected by means of a delicately-formed instrument, made by Weiss at the suggestion of Mr. Bowman, upon the principle of the female urethra dilator. I sometimes employ for the same purpose a material respecting which I shall have more to say subsequently, and which has the double advantage, that it can be fined down to almost any degree of tenuity,

* These probes, and the various instruments required in the treatment of these cases, can be procured at Weiss and Son's, Strand.

and when introduced into the canal, and subjected to moisture, will gradually increase to three or four times its previous diameter. In this way, by care and patience, a sufficient space may be obtained to allow a probe of average size to be passed. I rather prefer this method to any more forcible and rapid proceeding, as I consider it better to stretch than to tear and lacerate the membrane. If the object cannot be gained in this way, a long, narrow, finely probe-pointed bistoury must be passed along the canaliculus into the sac, and then, by a gentle sawing movement, the entire length of the tube must be opened and enlarged. I avoid this proceeding as much as possible, for although it facilitates the subsequent passage of a full-sized probe, it is often followed during the healing process by contraction more troublesome than the previous condition. We also meet with cases in which it is impossible to pass a probe or even a fine director into the distended sac. This may arise from a change in the direction of the canaliculus, causing it to curve backwards somewhat behind the sac, and making a sort of valvular closure, as evidenced by the slight regurgitation of fluid on pressure. Or the communication with the sac may be quite closed, and in that case the contents may either be made to pass by means of firm pressure down the duct, or in some instances it may be completely shut in. Under these circumstances a canular needle must be passed along in the direction of the sac, and made to penetrate its wall.

Another source of difficulty in the treatment of these cases is the tightness and firmness of the strictured part or parts, and the strong tendency they show to reclose after the passage of a probe. Various contrivances have been devised in order permanently to overcome the stricture. A modification of the old-fashioned style has been passed in a similar manner to the probe, and left in for a period varying from a few days to a few weeks in the hope of establishing a free and permanent passage. Experience, however, proves that there are serious objections to this plan; it often creates considerable pain, irritation, and even inflammation, during its residence in the canal, and, by the pressure it exerts upon the mucous lining, causes ulceration and destruction of this membrane. The result of this is not uncommonly a firmer and more invincible contraction than before, the treatment of which is much more difficult because the greater part of the true mucous lining is gone, and can never be restored.

In such cases as these, I have recently been in the habit of employing small bougies, formed of a species of sea-weed, the dried stem of sea-tangle—*Laminaria digitata*. This substance was first brought before the notice of the profession by Dr. Sloan, of Ayr, in the Glasgow Medical Journal for October, 1862.* It possesses several important advantages; it can be worked up of any size and length; it is quite smooth, firm, and elastic in its dry state, so that it can be passed very nearly as readily as a silver probe. When exposed to moisture, it expands to at least double, and even treble its former size. A power such as this, cautiously and skilfully employed, may be rendered of great value. I have succeeded in conquering some very obstinate and inveterate cases of long standing. I generally commence with a rather thin, fine bougie, that will readily pass, and I leave it in about ten minutes. At the end of that time it usually offers some resistance as it is drawn out; it is swollen, and at one or more points it is contracted, showing the seat and extent of the stricture. This is usually found to be a little below the sac, at the commencement of the duct, or only a short way beyond this point. Another bougie may now be used, partly covered with copal varnish in such a way as to limit the dilatation as much as possible to the strictured part. By gradually increasing the size of the dilatable part, and by leaving it in a somewhat longer period,—twenty minutes or half an hour,—a powerful effect may be produced upon the constricted portion of the canal. In fact, the principal risk in the employment of this material consists in the excess of power you possess. If a bougie be introduced of such a size as to pass in

* My attention was first directed to this substance by my friend and colleague, Mr. Couper, of the London Hospital, who has made some interesting experiments upon it. The bougies may be obtained at Kröne's, surgical-instrument maker, Whitechapel.

rather tightly, and if it be left in the canal for half an hour, it will be found to have expanded to such a degree beyond the seat of stricture that its removal is attended with considerable difficulty, and with some violence to the strictured part, as the swollen extremity forces its way through it. This, however, is an excess in the right direction. Every good mechanic knows that if he has a superabundance of force, he has only to subdue it to his will and regulate the direction of it in order to obtain from it a slavish and useful action. It is, in fact, the only way in which the principle of gradual dilatation can be applied with advantage to strictures of the nasal duct. I have found it very useful, and I believe it is capable of further development. It will not, of course, supersede the use of probes, but it will co-operate with them.

Another point in the treatment of these cases is the extent to which the sac becomes altered both in size and condition. These changes I described in the last lecture. Where, for instance, the sac has become very much dilated, thinned, and distended with glairy fluid, it is often found that after the stricture has been relieved, and when the contents of the sac can be readily pressed out both through the canaliculi and down the nasal duct, the lax and dilated walls of the sac quickly refill, and do not contract to anything like their normal dimensions. The patient should be directed to keep the sac constantly emptied by pressure with the finger, and as much as possible to keep up the pressure, so as never to allow the cavity to become distended. It is, however, found in practice, that, in spite of every precaution, this will frequently occur, particularly during the night. It is therefore in such cases that some mechanical means of keeping up gentle pressure on the anterior wall of the sac are often useful. I have sometimes employed a truss for this purpose, with a frame-work fixed on the forehead, and an arm coming from it, and so adjusted as to keep up gentle and continuous pressure. In another class of cases the sac is very much thickened, as well as enlarged, the lining membrane villous, and secreting puro-mucous fluid in considerable quantities. A restoration of the nasal duct will not remove the morbid condition of these parts. A similar treatment to that of the last group will be of some value. The injection of a stimulating and a stringent lotion into the sac by means of a syringe is useful; but in severe cases something more than this is required. On one or two occasions Mr. Bowman has dissected out the anterior part of the thickened sac with good effect, the only objection being that it is rather a tedious and difficult operation. Instead of this, I have sometimes freely opened the sac, and applied the potassa cum calce to the interior so as to destroy a considerable portion of it, taking care not to injure the skin. The cavity thus formed gradually granulates and heals, leaving a scar that is scarcely perceptible, and a sufficient space for the tears to find their way into the nose; or it may be necessary to renew the treatment by probes. The case will be much simplified by the destruction of a large portion of the diseased and thickened sac.

Another complication which I have described in the last lecture is a second cavity, communicating with the original sac, and frequently with the external parts, by means of a sinus. After the stricture has been relieved by probing, it is observed in such cases that a fluctuating tumour still remains, which cannot be emptied by pressure. We may then suspect the presence of a second cavity. This must be freely laid open, caustic applied, filled with lint, and healed from the bottom.

Cases of true fistula lachrymalis, in which there is an aperture in the skin, through which the tears constantly flow, is rather uncommon, and is not very easy to manage. We must endeavour, in the first place, to restore the permeability of the nasal duct in the usual way, and then to close the fistulous aperture by paring the edges of the skin, and bringing them together with fine sutures, so as, if possible, to obtain union by the first intention.

In cases of acute abscess of the sac, I have sometimes succeeded at an early stage, and just as matter is forming, in checking its further progress by freely opening the canaliculi, and passing a probe into the nose, so as to make free inlets and outlets, to the sac. At a later stage this becomes im-

possible, and a free opening must be made through the skin into the sac. No attempt can be made to restore the duct until all inflammation has passed off; but the occurrence of an acute attack renders the success by this method less probable.—*Lancet*, Dec. 19, 1863, Feb. 6, 1864, pp. 697, 147.

65.—ON A NEW MODE OF APPLYING SOME EXTERNAL AGENTS TO THE EYE.

By J. F. STREATFEILD, Esq., Assistant-Surgeon to the Royal London Ophthalmic Hospital.

The use of paper as a medium for the application of sulphate of atropine and various other soluble salts to the eye, has been before the public since my communication on the subject in the Ophthalmic Hospital Reports, in the number for January, 1862. This medium has been very much approved, and I may say generally adopted, owing to its convenience, and more or less also owing to its peculiar efficacy in some cases.* It has occurred to me that an improvement might be made if, in the new medium, we could secure, along with the convenience and efficacy pertaining to the paper, some vehicle which would not need to be removed from the eye after it had been applied, and the desired result had been gained. I have not now time or space even briefly to relate the advantages arising from, or the way of making the application by, the paper vehicle. I can only refer to my communication above mentioned, and to another in the succeeding number of the same journal. But I may allude to the alarm felt by some patients at any investigation of their eyes, even if only to remove the scrap of paper that has been introduced, and to the trouble sometimes found in removing it when it has got up beneath the upper lid. As the proposed substitute for paper need not be removed, the surgeon will often be saved a delay of twenty minutes, and will not be obliged to wait for the desired effect in order to remove the scrap of paper. Therefore, also, the patient can be trusted to employ the new medium himself, which is not the case with the old one. In order to obtain what I wanted, I first tried what is called "wafer-paper;" but this is brittle when dry, and loses all consistence when wet, so that it becomes unmanageable as soon as it is moistened; and moreover, the pulpy substance in the eye, if not washed out, might irritate. I am now employing gelatine, rolled out in sheets of the thickness of thin writing paper, and imbued with a definite proportion of sulphate of atropine or any other salt required. This retains the advantages of, and only requires the same mode of application as, atropine paper, but *it need not be removed from the eye*. It is soon dissolved in the tears, and acts in every way well. The dose employed thus, it appears, is more quickly applied to the eye than when a similar dose has to be dissolved out of the meshes of tissue paper; and to this it is that I attribute the pain felt by some of my patients when I have used a large square of "gelatine atropine paper." They have not complained of pain when I have used a smaller bit (or dose), less than a whole square. I am thinking of having a check of small squares printed in green on the gelatine, to define the doses, and to make the transparent gelatine more readily visible, *when about to be used*, for it need not be looked for afterwards.†

[We believe that Mr. Streatfeild has the honour of being the first to suggest this kind of practice, which we think valuable. EDS.]—*British and Foreign Medico-Chirurgical Review*, Jan. 1864, p. 281.

* The method was *invented and patented* in Paris a year after it was published in London.

† It is made by Mr. Squire, chemist to her Majesty, 271, Oxford-street, London, and will be shortly ready for the trial I hope it will obtain of my professional friends.

66.—SUBSTITUTION OF ATROPIZED AND CALABARIZED GELATINE FOR PAPER, FOR THE PURPOSE OF DILATING OR CONTRACTING THE IRIS.

By ERNEST HART, Esq., Ophthalmic Surgeon to St. Mary's Hospital.

In a recent record of the practice of Mr. Hart, we mentioned that he had caused to be prepared atropine papers considerably weaker than those originally prepared for Mr. Streatfeild, by Mr. Squire. The latter were of a strength such that each square contains an amount of atropine equal to that contained in one drop of a solution of two grains to an ounce (240th of a grain). For ordinary, and especially for ophthalmoscopic purposes, this is an inconvenient strength; it produces not only dilatation of the pupil, but paralysis of the accommodation of the eye, with the consequent inconvenience of inability to adjust vision for near objects, and dazzling from the disparity of the visual powers of the two eyes. The papers prepared by Messrs. Savory and Moore for Mr. Hart, run as low as 100,000th of a grain in each square. With this strength dilatation is secured from ten to fifteen minutes; and, when more time can be given, even feebler doses may be used. The dilatation, even with the 100,000th of a grain, will often last for as long as twenty-four hours if unchecked, although, as accommodation is very little affected, there is but very trifling inconvenience indeed attaching to this condition. The Calabar bean papers of Squire and Bell do not suffice to overcome this dilatation satisfactorily if only one square is used; two squares commonly suffice. A stronger paper of Savory and Moore effects the recontraction with one square, if this be desired. These facts have been repeatedly tested on the patients in the out department, and especially in preparing them for ophthalmoscopic demonstrations.

Thus as to the strength of the substances which may be employed for the dilatation or contraction of the pupil in ophthalmic practice. But Mr. Hart has found, as have other ophthalmic surgeons, that the substance employed to hold the atropine is objectionable. The use of these papers is not without inconveniences. Many eyes resent vigorously the sojourn of a foreign body between the lids and the globe, however delicately thin and small it be; and often the paper will produce so much irritation that the patient cannot endure its use. Hence, probably, for hospital practice, and in many traumatic and inflammatory cases the use of the very dilute solution of sulphate of atrophine (when indicated), in distilled water, will be always preferable to the "dry medication." Obviously, however, one great objection to the use of atrophine and Calabar bean in this very portable and exactly-measured dry form would be overcome, if for paper could be substituted a substance which which should be equally portable and clean, but should be soluble in the secretions of the eye, and would dissolve after being placed within the lids. Mr. Hart has directed his attention to this point. Various substances occur to the mind which may be employed for the purpose, but it has not been easy to select one fulfilling all the indications. A preparation similar to that known as wafer-paper came near to supplying the desideratum, but it was difficult to get it sufficiently thin and pliable. Scales of sugar of milk can be prepared, which are convenient; but the heat required to prepare them is greater than that by which atropine is decomposed. In the end, however, Mr. Hart has fixed upon a substance which seems to fulfil the various indications very satisfactorily. This is gelatine. The ordinary sheets of gelatine are by far too thick and clumsy to be used for this purpose; but Messrs. Savory and Moore have supplied him with prepared sheets of a gelatine, very thin, pure, flexible and tough, which quickly dissolves when a morsel is placed within the eyelids. Impregnated with atropine or Calabar extract in given quantities, this fulfils all the purposes of, and, in so far as it is soluble, has a manifest advantage over the paper.—*Lancet*, Jan. 16, 1864, p. 65.

67.—TREATMENT OF CILIARY BLEPHARITIS BY PAINTING THE EDGE OF THE LIDS WITH TINCTURE OF IODINE.

Dr. FANO, Professor in the Faculty of Paris, has derived great advantages from this treatment with three children whose cases he states. The following remarks show in what way the author applies the tincture of iodine on the diseased lids, and the therapeutical effects of this application. Ciliary blepharitis is an affection with well-marked symptoms. Studied with care in our time by a great number of ophthalmic surgeons, all acknowledge now that in the beginning the disease consists of a phlegmasia of the skin in the ciliary region, and that it is only later that this inflammation, gaining the cavity of the hair follicles, causes ulcerations more or less deep, which finish by making the hairs drop out, and cause the deformity known by the name of madarosis, ciliary alopecia.

The application of the tincture of iodine on the affected parts modifies their vitality, changes the nature of the morbid secretion, and arrests the scabbing process. This application requires great care and precaution, the absence of which might cause a failure in this mode of treatment.

The scabs which cover the margin of the lid must first be taken off. If this precaution is not taken, the tincture does not act on the diseased parts covered by scabs. If these scabs are too hard to be taken off, they must first be softened with warm water or by applying a linseed-meal poultice to them. Then put a hair pencil in a solution of equal parts of tincture of iodine and distilled water, and pass the extremity of the pencil on the edge of the lid, taking care that the liquid penetrates into the interval of the lashes. The hairs of the pencil must, therefore, pass and repass several times over the same parts, without which the liquid penetrates the lashes, and not the skin. It is a regular painting that must be done.

During this application care must be taken not to touch the conjunctiva with the tincture of iodine. It is easy to do this by the following method: If it is the upper lid that is under treatment, tell the patient to look down, draw the upper lid in the same direction, so as to bring it slightly opposite the inferior one, which then covers the ball of the eye. For the lower lid, it is sufficient to draw it downwards by direct traction on the skin. If some drops of tincture get behind the lids on the conjunctiva, it should immediately be washed with cold water.—*Dublin Medical Press*, March 2, 1864, p. 222.

68.—ON THE ACTION, PREPARATIONS, AND USE OF THE CALABAR BEAN.

By THOMAS NUNNELEY, Esq., Surgeon to the Leeds General Eye and Ear Infirmary.

As to the energetic local action of Calabar bean upon the pupil there is not the smallest room for doubt. There is no other substance known which possesses anything like the power it does in painlessly, quickly, and without irritation, contracting the pupil. In all cases where the pupil is preternaturally dilated and it is thought to be desirable to contract it, preparations of the Calabar bean may be employed without hesitation.

It is in contracting the pupil so as to withdraw a prolapsed iris which has escaped through a wound in the cornea that I consider the great value of the bean consists. I pointed out this use in a paper inserted in the *Lancet* for July 18th, 1863, where I related two cases in which I had so employed it. Since then I have used it in similar cases with considerable advantage. I believe it here promises to be of the greatest value, and that it will enable us to save as useful organs many eyes which otherwise would be altogether lost or comparatively useless, and in a great number of cases to convert what hitherto has been a prolonged, painful, and very troublesome affection into a much more manageable and shorter one. So also it occurs to me that

in all probability it may be valuable in those most annoying cases where after extraction of the lens the iris prolapses, and will not remain out of the lips of the corneal wound. There are few ophthalmic surgeons who have not occasionally had the mortification, after a most successful extraction, of finding the iris has prolapsed, and uncontrollable destructive inflammation has followed. Very recently, as I was operating upon an excitable woman, as soon as the knife had well penetrated the cornea, she jumped up and could not be restrained. The knife had to be withdrawn, on which the iris prolapsed. I thought this a good opportunity of trying the effect of the bean. A portion of Squire's paper was immediately introduced under the lid, and the woman placed in bed. On the day following the wound had healed, the pupil being as round and the iris as natural as ever it was.

In granular and irritable lids; in strumous ophthalmia where there is much photophobia; in some of the active inflammatory affections of the conjunctiva, where there is much pain and excitement, and where the contractile effect upon the iris will not be objectionable; possibly also in pure and uncomplicated retinitis, where contraction of the pupil by the exclusion of light would be useful—a lotion of the extract of the bean may be valuable. So soon as I can obtain a sufficient supply of the bean to test it on a large scale, I shall put it to the proof in these and similar affections.

With regard to the best preparation and the best method of applying it, that one must be selected which will keep unchanged, and which admits of application to the conjunctiva without causing irritation; for in all cases the application should, I think, be made to this membrane. As the watery infusions and extracts will not keep, and are not so active as the spirituous preparations, they are not likely to be so much employed as them. Perhaps, if the bean becomes abundant an infusion may be used as a collyrium.

It will be seen that ether, chloroform, and acids are not good menstrua, as they possess the double disadvantage of not extracting much of the active principle of the bean, and also of irritating the eye when put into it. Their employment may be dismissed as injudicious. Boiling spirit extracts in the greatest degree the active principle: but then it is necessary to either drive off the whole of the spirit, or to so dilute this that when applied it shall not stimulate the conjunctiva. To preserve the extract and dilute it for use, glycerine has been employed. Messrs. Bell and others have enclosed the glycerine solution in capillary tubes, hermetically sealed, in which it will probably keep unchanged for any length of time. So prepared, the application is easy, by breaking off both ends of the tube and blowing out the contents into the eye; but as the quantity put in cannot always be accurately controlled, this is an objection to the method.

I have kept the spirit extract dissolved in glycerine for upwards of three months; it is apparently unchanged, and if it so continues, as it probably will do, this forms one of the most convenient preparations. The quantity and strength may be regulated with the greatest nicety, and the glycerine is a bland medium, and very miscible with other fluids if it be wished to use it in combination or greatly diluted.

Mr. Squire and Messrs. Bell and Co. have prepared paper saturated with a tincture of the bean, and then dried like the atropine paper suggested by Mr. Streatfeild. This is a very convenient form of preparation, and should it be found to keep unimpaired, of which I have some doubt (though experience alone can determine this point), it will, from its portability, be most commonly used. When simple temporary closure of the pupil is desired, a morsel of the paper should be put within the lower lid. The principal objection which I have found to the paper is, that in some eyes it acts as a foreign substance, particularly if it be not carefully and smoothly put in. It then causes a copious flow of tears, and, being carried about by the motion of the lids, is so soon washed out that the effect is lost. I have seen the paper remain in for forty-eight hours without exciting the least irritation; and I have known it washed out in a few minutes. In one case I have known it remain in for fourteen days, and in another for twenty-one days. *The thinner the paper the better it is; hence I prefer that prepared by Mr.*

Squire, which is not more than half as thick as that made by Messrs. Bell and Co.

Mr. Squire has supplied me with a tincture of the bean. This is an elegant and persistent preparation, but which requires considerable dilution in its use, lest the spirit prove injurious. One drop to ten drops of water will, in many cases, act efficiently. If a permanent action be required, whatever the preparation used may be, unless, perhaps, in a less degree, the paper, repetition of the application, at intervals of eight or twelve hours, is necessary in all cases. I have found the effect in twelve hours very considerably lessened, and in twenty-four, nearly, if not altogether gone. The frequent repetition does not appear to be in any way prejudicial, nor the effect to be weakened. I have kept the irides of men and animals in a constant state of contraction for days and weeks, and in one boy for upwards of a month. On the cessation of the application the pupil at once resumed its normal condition.

Whether any other substance possesses similar control over the iris remains to be proved; probably others will be found to act similar.

As opium taken internally has the effect of contracting the pupil, I have tried its local action by dropping into the eye a solution of the acetate of morphia. A good deal of lachrymation, but not much contraction of the pupil, was induced, presenting thus a striking contrast to the Calabar bean; for while this, applied locally, contracts the pupil intensely, when taken internally, even to a fatal dose, it has little influence over it. Opium, on the other hand, taken internally, contracts the pupil strongly; applied locally, it appears to have little effect on it.

It has been stated that conia and Calabar bean have analogous actions. I have lately tried the effect of conia, locally, and internally, without confirmation of the statement. My previous experience of the action of conia when administered by the mouth or lungs had not led me to consider the symptoms induced by Calabar bean like those caused by a poisonous dose of conia. In the latter the action is much more speedy; there is coma, preceded by intense giddiness; consciousness and sensation are lost; and convulsions not unfrequently are caused,—none of which occur in Calabar bean poisoning. When conia is put into the eye great lachrymation, irritation, and photophobia are induced but no contraction of the pupil.

Mr. Reynolds suggested theine, and kindly supplied me with some for experiment. On trial, I find the result altogether negative.

Mr. Squire having sent me a supply of the extract of the flowering plant of aconite, I have tried it. It dilates the pupil less actively than belladonna, but with more irritation.

During the time this essay has been in course of publication I have had the opportunity of using the extract of the bean in the following case:—

In a child three weeks old, who has been suffering from acute purulent ophthalmia from within a few days after birth, I found a considerable portion of both corneæ in a state of slough, through which a very large portion of the irides prolapsed. A solution of the spirit extract of the Calabar bean was put into both eyes, night and morning, for two days, when the prolapsed portions had greatly receded. The extract was now suspended for two days, at the end of which time the prolapsed portions had so greatly increased in size that the employment of it was resumed at once. The escaped parts again began to recede, and the corneal wounds to lessen, until at the expiration of seven days, the ulcers had so nearly healed that the use of the bean was omitted. During this period the extract was dropped into the eyes twice daily; and as there was still some purulent discharge, a weak solution of nitrate of silver was also employed twice a day,—the two preparations being used alternately, at as nearly equal intervals of time as possible. The case is still under observation, and though it would be improper from a single case to make any very positive assertions as to cause and effect, I may with confidence state that I never saw a case in which the prolapse so completely and quickly withdrew and the corneal ulcers closed. Though the *propter hoc* may possibly not be proved, of the fact of the receding of the irides on the first application of the extract, of the renewed prolapse on the intermission of the application,

and of the again speedy withdrawal of the escaped portions and healing of the ulcers on the renewed application, neither the intelligent surgeon whose patient the child was, and who himself kindly undertook to put the extract into the eyes to secure its being efficiently done, has any more than myself, the slightest doubt. Should experience confirm my anticipations, I need hardly say that a most valuable remedy is discovered for assisting us in mitigating a dreadful calamity; for, by the speedy withdrawal of the escaped iris from the wound, there is a much greater probability of a useful pupil being left; and also, as the principal cause of irritation (the prolapsed iris) is removed, the inflammation quickly subsides and the corneal opening closes.

By way of postscript I would wish to mention that at the commencement of this essay I believe I was led into a mistake in stating that Dr. Frazer undertook his investigations at the suggestion of Dr. Christison. I have now reason to believe they were commenced *motu proprio*, and that his thesis was printed some time before he held his present appointment as assistant to the learned Professor. This correction may perhaps not to some appear to be of much moment. I believe, however, it is only proper that it should be made. So also I find, on referring to Dr. Robertson's paper, in which he at an early stage called attention to the contractile power over the iris which the bean possesses, he suggested on theoretical grounds, that the use of it might be found beneficial in ulcers of the cornea, where there is a tendency of the iris to escape. To this Dr. Robertson has called my attention; but I find that he, like myself, had unknowingly been anticipated in the idea by Dr. Frazer in his thesis. Neither of these gentlemen, however, appears to have done more than suggest the possibility of the bean being found useful when so employed, and I feel assured that both of them will willingly concede that I may claim priority in the practical employment of the bean, as pointed out in my former paper, in wounds of the cornea, as well as in the various other affections I have alluded to in this essay.—*Lancet*, Nov. 28, 1863, p. 616.

69.—PROLAPSE OF THE IRIS THROUGH A WOUND OF THE CORNEA; DILATATION OF THE PUPIL WITH ^{EXTRACT} OF A GRAIN OF ATROPINE, AND RECONTRACTION WITH THE EXTRACT OF THE CALABAR BEAN.

By ERNEST HART, Esq., Ophthalmic Surgeon to St. Mary's Hospital.

The earliest experience of the power which the Calabar bean possesses of contracting the pupil, caused its application to prolapse of the iris in corneal wound and to the recontraction of a dilated pupil to be at once indicated. In many cases of prolapsed iris it has proved of singular benefit, and in one very marked case last week, at St. Mary's Hospital, it saved from excision a large portion of iris which must have been removed. A little boy had received a clean cut, which had opened the cornea freely near the sclerotical junction, and without inflicting other injury. The lad was placed under chloroform in the theatre, and the eye carefully examined, which, as he was so excessively restless, could not otherwise be satisfactorily accomplished. The wound proved to be so shaped as to leave loose a small triangular flap of cornea. Fully a fourth of the iris prolapsed. A small square of Calabar bean paper had an hour previously been introduced under the eyelids, and all the pupil was firmly contracted except the prolapsed part; the traction was not sufficient to draw this in. It was returned by a probe, and a further drop of the glycerine extract of J. Bell and Co. (one drop equal to four grains of the extract) was introduced. The lid was closed, and a pad strapped over it. All went well next morning when the eye was examined, but as the effect of the bean wore off the prolapse again occurred, as the small corneal flap had not united. Fresh instillation of the Calabar bean was made, and the eye rebandaged. By continuing this treatment, reduction has been fully established.

Mr. Hart has also been carrying out a somewhat lengthened series of ob-

servations on patients submitted to the ophthalmoscope, of which the object has been to ascertain the smallest quantity of atropine which will effect the dilatation of the pupil. The reason for wishing to ascertain this, he states, is twofold. The atropine paper prepared by Mr. Squire for Mr. Streatfeild he had found by far too strong for ordinary ophthalmoscopic purposes, and far stronger, indeed, than is generally required. Thus it not only rapidly dilates the pupil, but paralyzes completely the accommodation of the eye; and these very inconvenient conditions, with the consequent disturbance of vision, often last as long as five, six, or more days after the use of this paper. Moreover, the Calabar bean paper hitherto prepared has not proved sufficiently strong to counterbalance the degree of dilatation. The square of an eighth of an inch of this paper contains $\frac{1}{10}$ of a grain of sulphate of atropia. Mr. Hart has been using paper so prepared that one square contains as little as $\frac{1}{10000}$ or $\frac{1}{100000}$ of a grain, and he finds that dilatation is very effectually procured with the latter. The dilatation is more rapid when the eye is kept in the dark immediately after the introduction of the paper, but it takes place quickly enough when the eye is exposed to the light, and lasts nearly twenty-four hours. The accommodation is very slightly affected when this paper is used, and recontraction may then be effectually obtained with the Calabar bean paper. Mr. Hart is continuing the experiments, which will enable him to fix the lowest available strength of the atropine paper or solution, and the relative strength of the Calabar bean paper or solution. Meantime it is evident that the problem of concurrent dilatation and recontraction is solved, and that surgeons wishing to dilate the pupil will find an advantage in employing the extremely dilute strength above mentioned. The papers used in the above experiments were supplied by Messrs. Savory and Moore.

One of the difficulties of making Calabar bean paper of considerable strength arises from the fact that at present the alcoholic extract is the most condensed preparation yet obtained, containing its active principle; and this is of course far more bulky than the alkaloid atropine. Dr. Christison has for some time, Mr. Hart observed, been endeavouring to extract from the Calabar bean an alkaloid or other active principle. This, however, has not yet been isolated, and it seems difficult to ascertain even what is the nature of this active principle. The bean does not yield it to acid solutions; and hence Dr. Squire has suggested that it is probably not an alkaloid, or some salt of it would be soluble in water, which appears not to be the case, as aqueous solutions of the Calabar bean are inert. Hence it seems probable that it is some body of the nature of santonine or piperine, which belong to the class of neutral or slightly acid bodies; or it may even be a resin. But it is hardly probable that the bean will yield an alkaloid; it yields a beautiful gum.—*Lancet*, Dec. 12, 1863, p. 677.

70.—ON IRIDECTOMY.

By GEORGE CRITCHETT, Esq., Surgeon to the Moorfields Ophthalmic Hospital.

The disease has been so admirably described by Von Gräfe, by Mr. Bowman, and others, that I do not think it desirable to enter at any length upon this part of the subject. I may, however, briefly state that under the name of glaucoma we now include a great number of conditions; and that, whilst we recognize a common law binding these together, we find an ever increasing diversity of manifestation. Thus glaucoma may exhibit all the symptoms of the most acute inflammation of the globe, attended with agonising pain, sickness, and prostration, and destroying sight in twenty-four hours; or there may be a slow form of inflammation, extending over many months, sometimes proceeding steadily on until sight is extinct, at others presenting temporary remissions and ameliorations, which are sooner or later followed by relapses; or, again, we frequently meet with cases in which the sight is slowly pressed out of the eye, until vision is totally gone, without the least evidence of inflammatory action, and in such cases the interval between

the commencement of dimness and the total loss of sight may sometimes be reckoned by years. Between these extremes we have every shade of difference; and the common condition or law that binds them all together is *increased tension or hardness of the eyeball*. Even the opponents of iridectomy seem to admit that glaucoma is incurable by ordinary treatment. I can well remember the pain I often experienced, and the helplessness I felt, when these cases came under my care, before iridectomy had been discovered. A case would often present itself in which one eye was hopelessly gone, utterly disorganised. The same disease would be commencing in the other eye. Symptoms would perhaps remit; would recur with increased violence; treatment, however varied or active, would utterly fail; hopeless, permanent blindness would bring the sad drama to a close; the black curtain would fall, never to rise again. In an experience of twenty years, I do not recall a single exception to this sad result. Every ophthalmic surgeon, who possesses a wide field of observation, knows that the painful picture is drawn from life. Well do I remember the half hopeful, half doubting joy with which I heard that a remedy had been discovered for glaucoma. The reports of Von Gräfe's brilliant and immortal discovery came to us at first like an uncertain sound; it seemed too good to be true. Mr. Bowman was the first to perform the operation of iridectomy in this country, at the Ophthalmic Hospital. Shortly after this, in June 1857, I performed my first iridectomy upon a lady I saw in consultation with Mr. Goude, of Cheapside. I published this, together with three other cases of acute glaucoma treated in a similar way, in the Ophthalmic Hospital Reports, January 1858. Another lady, upon whom I operated in September 1857, and whose case is also published in the same paper, called upon me a few days ago, after an interval of six years, in the enjoyment of good sight—proving not only the efficacy, but the permanent effects of the operation. Since that time, I have been in the constant habit of performing this operation. Scarcely a week has passed without giving me an opportunity of testing its merits. After having operated upon above two hundred cases, I can confidently state that the results have been most satisfactory; and that glaucoma may be pronounced a curable disease, when the operation is performed at a sufficiently early stage. As there is universality in the law that binds all cases of glaucoma together—viz., *increased hardness or tension of the eyeball*—so is there universality as regards the effect of iridectomy on the glaucomatous eye—viz., *it restores to it its natural elasticity*.

The actual effect of the operation upon vision varies greatly, according to the special circumstances of each case. Of these effects, time and space only permit me to give a very brief summary, in confirmation of statements made by other authorities, and as the result of my own experience. All observers admit, that it is in acute glaucoma that the results of iridectomy are most brilliant. As the eye is speedily and violently destroyed by this form of the disease, so does iridectomy, if performed within a few days of the attack, restore the sight to something very nearly approaching the normal standard. But, although the effects of the operation upon other phases of the disease, and in more chronic cases, are less striking, they are not less certain or satisfactory, if compared with the alternative that awaits the patient when iridectomy is not performed.

In all cases of chronic glaucoma, past experience warrants the expectation that the amount of sight existing at the time of the operation will be preserved; moreover, the restoration of elasticity to the eyeball, gives to the partially paralysed retina the best chance of recovering some of its functions and sensitiveness. I have met with several interesting cases of this kind, in which the field of vision has gradually extended, and the acuteness of sight has gradually increased for many months, and even for years. In those cases in which there has been slow limitation of the field of vision without inflammation, the result of simple pressure, iridectomy arrests the disease and preserves all the sight which remained at the time of the operation; but it does not usually restore that which has been lost. There are other very interesting cases, in which the premonitory symptoms of acute glaucoma exist,

and in which the operation, timely performed, prevents the acute attack; but this belongs rather to minute details, upon which I do not propose to enter. —*British Medical Journal*, Jan. 20, 1864, p. 19.

71.—ON IRIDECTOMY.

By HAYNES WALTON, Esq., Surgeon to the Central London Ophthalmic Hospital, &c.

"Iridectomy," or iridectomy, as it is expressed in English, is the term originally introduced to express the operation for the formation of an artificial pupil by removing a portion of the iris. More commonly, however, we say artificial pupil by excision. The modern operation is the same, only on a far more extended scale.

Iridectomy to cure disease was first performed by Professor Von Gräfe of Berlin, and was quickly taken up in England, in consequence of certain circumstances which it is unnecessary to narrate.

Von Gräfe's attention was first drawn to the efficacy of the treatment in internal inflammation of the eye-ball, by observing the results of the operation for artificial pupil by excision after irido-choroiditis with closed pupil. In such cases, he ascertained by experiment "that the increased power of vision was in no way dependent on reabsorption of the pupillary exudations, but was entirely to be ascribed to an improvement in the choroidal complications." I quote from Mr. Windsor's translation in the Sydenham Society's Volume for 1859.

Encouraged by success, he proceeded to operate on cases in which, after previous iritis with pupillary exudations, there had resulted atrophy of the globe of the eye from secondary choroiditis. He treated by repeated iridectomy many cases in which the globe had become very soft, and much flattened by the action of the recti muscles, and it was ultimately perfectly re-filled. He relates the case of a man to whom he had formerly given a certificate of incurable blindness on account of atrophy of both globes. Vision was limited to a dull quantitative sensation of light. At the time of writing, the operation having been performed *six times*, the patient could count fingers at the distance of some feet, and distinguish letters of the largest print, and the vision was weekly improving.

This statement about resuscitating collapsed eyes puzzled me for a long time; at last I was able to understand it. After an operation by solution for soft cataract, in an unhealthy and softened eye-ball, I found the softness exchanged for more than natural plumpness; and this actually lasted for weeks, so long, indeed, as the preternatural vascularity arising out of the operation remained. The increased vascular action was the secret. This surely points to Von Gräfe's incorrect observation, and false conclusion. And if so, what a basis to theorise on!

After this he directed the new remedy to glaucoma, then to chronic and recurrent iritis, and irido-choroiditis, and found it specially useful in ulceration and infiltration of the cornea, in partial staphyloma of the cornea, and staphylomata of the sclerotic. In acute glaucoma, the results were said to be very striking; the earlier the operation was done the better; but the duration of weeks, or of months, did not exclude complete restoration.

In chronic glaucoma the disease was arrested, and the existing amount of sight was preserved. More rarely the improvement was temporary; atrophy ensued, but the pain did not recur.

Von Gräfe argues against the retina being originally invaded by the disease; he makes the pathology to be derangement of the choroid, hypertrophy of the vitreous humour by endosmosis, and, as a consequence, pressure on the retina. Will any one attempt to reconcile the two opposed actions, the filling of a flabby eye-ball, and the softening of a tense one by the same operation? He removes a portion of the iris, because he supposes that this diaphragm is the source of the aqueous secretion, and that, by reducing it, less fluid is poured out; less pressure is therefore produced; and, accordingly

as the operation is done as to time, so is the retina completely preserved from injury, and rescued from complete destruction. I have discussed this, and other theories that have been advanced on the *modus operandi* of iridectomy at length in my book, and urged my objections; but I shall not notice them here, as I find that, in the letters addressed to you, the writers not only do not stand out for theory, but ignore any such support. But I do not like this off hand method. I require some explanation; because, to my mind, iridectomy, or the cutting off of a portion of eye-tissue to cure a blood-disease, involves a positive absurdity. According to the showing of Von Gräfe, it gives dissimilar results, and it could not cure, as he alleges it does, in affections of such different pathology as those named by him. It is no answer to ask, how does quinine or opium act? This is not a question of the action of drugs. I presume no one ever expects to be able to read vital processes, and to tell the ultimate workings of living machinery; but I do require some show of reason before I adopt a surgical operation which breaks the structure, and disarranges the wonderful mechanism of the glorious and precious eye.

I pass on to consider practically the effects of iridectomy, and to notice the statements of those who believe in its virtue. At once I say, that benefit is to be got, not through any direct effect on the iris, but solely in consequence of the evacuation of the aqueous humour. It is not, then, the iridectomy that does this, but that which takes place as an inevitable step of the operation as a preliminary measure, namely, the "paracentesis corneæ." More than half a century ago, the value of tapping the cornea was clearly made out by Mr. Wardrop, who did more in this country to advance ophthalmic surgery than any man of his time. His writings attest to his great labour, the accuracy of his observation, and the wonderful extent of his investigations. It is with great pleasure that I refer to his practical and philosophical paper "On the Effects of Evacuating the Aqueous Humour in Inflammation of the Eyes" in the *Medico-Chirurgical Transactions*, vol. iv, p. 145. He was led to try the remedy in consequence of certain morbid changes in the dead eye, from which he drew physiological deductions, and fortunately afterwards verified them by surgical experiment. This paper is a model for the imitation of those who would conduct original investigations in practical surgery. His first trial, very strange indeed to tell, as apposite to the point, was in a case of milkiness of the cornea, distended eye-ball, and acute inflammatory symptoms. He says, "I discharged the aqueous humour by a small incision through the cornea, and had the satisfaction to find that the operation produced not only an alteration in the degree of transparency of the cornea, but also that the pain and all the inflammatory symptoms were removed." After this I find the plan applied to cases of violent inflammation of the eye-ball, in which the cornea was not involved. Again, he points out that in those cases where the practice of evacuating the aqueous humour is judiciously employed, although the operation may create some temporary irritation, yet its good effects will become immediately perceptible, and in most cases will be permanent. The more obvious of these are a more or less considerable improvement in vision, particularly where there is a cloudiness in the anterior chamber; a complete cessation of the sense of fullness of the eye-ball, and pain in the head; and in some cases a very remarkable change in the size of the inflamed vessels. It would almost seem as if he were in this controversy when he remarks, that the great and immediate relief of evacuation of the aqueous humour most probably arises chiefly from the sudden removal of *tension*. He wishes it to be understood that the discharge of the aqueous humour is not to be here recommended as the sole remedy in any case of ophthalmia, but is only to be considered as a powerful auxiliary in some, and in others as a sure, and perhaps the only means of preventing a total destruction of the organ. I advise all surgeons who are interested in ophthalmic surgery to study the essay; for this author claims a far greater range of benefit for his patients than does the warmest advocate of iridectomy. He is assured of its potency in all inflammations of the eye-ball; in purulent and gonorrhæal ophthalmia; in corneitis; in mechanical injuries of the eye-ball. Such, it seems to me, is the nature of the remedy that, theo-

retically speaking, if found useful in any one condition of inflammation of the eye-ball, we can hardly be wrong in generalising, and trying it in all.

Mr. Wadrop's rationale is this. The object is to diminish suddenly the over-distension of the eye-ball; the evacuation of the aqueous humour must fulfil this intention in a more complete manner than can be conceived probable by any means of abstracting blood from its vessels; for, as the ophthalmic artery comes from the skull, little blood can be taken directly from any of its branches, and it would require a great quantity of blood to be drawn from the temples or neighbouring arteries, to make any remarkable change in the quantity of the contents of the eye; or, at least, a change equal to that which would be produced by the discharge of the aqueous humour. From the advantages also which have been universally found to arise from a sudden depletion of blood, in comparison with what can be derived from a slow detraction, considerable benefits might be expected from the practice.

I have the greatest faith in the remedial efficacy of tapping the eye in all inflammatory affections, and even under other states of disease; and I have often found the repetition to tell, where a single operation has given but little or no result; and in very severe cases I have occasionally repeated the proceeding even several consecutive days. Yet I do not exalt the measure beyond the limit the originator modestly claimed for it.

It would not serve my purpose to do more at present than merely to state my general results, for detail. I could not strengthen my argument; and I might be tedious. Again and again I have seen dispelled, by the corneal tapping, the premonitory symptoms of what would be now called glaucoma. I have repeatedly given relief by discharging the aqueous humour, in many stages of ocular disorganisation, when nothing else would relieve. I have seen a small staphyloma of the sclerotic, resulting from a long continued acute inflammation of the eye-ball quite pass away, leaving only marks, after a few tapplings, by which the vascular action was quelled. The several symptoms occurred after a needle operation for cataract, and long after the cataract was absorbed. Iridectomy was strongly urged in consultation, but I resisted it, for which the patient says he cannot be too thankful. I have the most thorough conviction, that by this system of tapping, combined with general treatment, is to be secured the highest attainable success in inflammatory diseases of the eye-ball. I use the expression, inflammatory diseases, because I wish to avoid the nice distinctions of ophthalmic nomenclature. There is sure to be a difference of opinion among those addressing you on this point; and, indeed, I know no greater ophthalmic puzzle than to point out practically the distinctive differences between what is called acute glaucoma, choroiditis, and arthritic iritis. There is a deal of confusion here for future investigators to simplify. Many of the cases of so-called glaucoma that I have seen operated on, I should describe as choroiditis. Thus I have heard some of these affections regarded by another surgeon as "arthritic posterior internal ophthalmia." Again, I find one of your correspondents of great reputation, defining glaucoma to be "the whole course and several varieties of disease, leading to that last hopeless stage of extinguished sight and disorganized tissues." There can be no more comprehensive description than this; it will take in every ophthalmic inflammation; and still more, this gentleman goes even further, and in his several writings speaks of glaucomatous complications, and the glaucomatous element; conditions, that I, as a man practised in eye-diseases, fail to comprehend.

I am anxious to prevent any young surgeon from supposing that tapping the eye is a perfect panacea. It is not so; neither is any other operation a perfect cure for all idiopathic inflammatory affections. Many cases are met with, that baffle all art and science. I only speak of it in the same terms as its author; as an aid, and to be used along with other means. Nor have we yet discovered any practical surgical measure for curing the bad old-fashioned disease called glaucoma, as understood by me, and by my teachers, Lawrence, Tyrrell, Dalrymple, and expressed by Dr. Mackenzie in his works. According to my experience, it is a very rare disease, each attack of which, each paroxysm, inflicts a definite damage. The eye may

be destroyed at once; or it may retain some amount of sight after several periods of renewed activity. Tapping will often relieve; and so will iridectomy as a means of tapping. Pain will be lessened, and perhaps the period of attack shortened. I speak cautiously about the amount of substantial benefit to the eye, because I have so often seen all operations and treatment fail and the eye perish; and in cases where there has been no operation, the spoiling of tissues has been incredibly small. It is not a matter of "cut and you save, don't cut and you destroy." However, our duty is to adopt every likely measure that may do good, while it will not damage.

I cannot help a passing remark on the alleged cause of destruction to the eye in glaucoma; namely, pressure on the retina, of which the greatest evidence is said to be got in "cupping" apart from glaucoma, and even when the eye-ball is not hard; and I am perfectly sure that it is not to be seen in many of the cases of acute glaucoma, when the fundus of the eye can be examined. It more commonly exists in the eyes that have long been blind. There it appears, I suspect that the nerve-tissue has been primarily invaded by disease, or coincidentally with the implication of other parts. I regard pressure, if it have any influence at all, as acting secondarily. When this nerve-change exists, by which the eye must be more or less spoiled, I do not believe that any treatment is available. To say that the cupping becomes less, is to admit the generation or reproduction of nerve-tissue. And how could it be proved that the cupping is less? and if it could be demonstrated, would a fractional change be of any advantage, when the least cupping is known to be associated with damaged sight?

The glaucoma, as in every other acute inflammatory ophthalmic disease, the eye-ball is tense, it is hardest of all in long standing glaucoma, and this can only be by an increase of its fluid contents. The choroid and the iris hold very nearly all the blood that is in the eye, and there is an increase in the size, and perhaps even in the number of blood-vessels. It is likely, too, that exudation from the vessels tends to the augmented overfulness. Now all this takes place in every case of severe inflammation of the eyeball, whether it be from purulent ophthalmia, from wounds, from mechanical injuries of all kinds, from gout, rheumatism, syphilis; and who ever found the optic disc cupped from this pressure? It is likely enough that the pressure on the retina has the largest share in eclipsing sight; but after the inflammation from these causes have been subdued, although weeks have elapsed, the eye is often restored to perfect integrity. The same may be said when the eye is pressed on from without by tumours. Sight may be lost for a time; but if the pressure be removed, the patient sees again, and the ophthalmoscope shews a perfect eye. Too much stress has been laid on the tension of the eyeball. When there is the increased volume in the eye from inflammation, tension must of course always exist; and if it be made a signal for iridectomy, I can only say that the surgeon in ophthalmic practice who so regards it, and acts, will always have a large stock of cases ready for his knife, and in proportion as he multiplies his operative surgery, so will he decrease the eye-sight of his patients. It is through such examples that we get the astounding records of wonders. Mrs. A. is blind to-day, as she might indeed be from rheumatic inflammation, &c. She is "iridectomised," and in a week she can, with spectacles, and while looking through a pin-hole, read No. 10 Gräfe's type. This poor woman would have read No. 6 without any appliance, if her iris had not been trimmed, and if general treatment only had been used. I rejoice to think that in private practice I have saved many cases like Mrs. A.'s from damage.

It will not do to say that there is a difference in the kind of tension between that arising from glaucoma, and that from other inflammations. Moreover, I will not allow that such pressure admits of being recognisable under several degrees—seven it is said. Without weight and measure, how can such estimates be conveyed from one mind to another? A medical man consulted me about impaired vision from some obscure cause; I could detect *nothing wrong with the eyeball*. He went to a surgeon of considerable re

putation, who pronounced one eye to be like ivory, the other like india-rubber. He (the patient) could not perceive any difference to the touch, nor could I. He consulted another ophthalmic surgeon in a high position, who declared that there was no difference in the tension of the eyes. I mention this to show how differently persons estimate things by the sense of touch.

I can state that, I have never met with any bad result from tapping the eye. The worst thing that ever occurred was a slight prolapse of the iris, and that in a single instance.

Iridectomy is an operation that demands very considerable nicety in execution, and is done better under the influence of chloroform. This is not in itself objectionable; but it has significance in my argument. There are many frequent unavoidable dangers attendant on it, immediate and remote, of which the profession are ignorant, and they have been kept in the background.

It is not always possible to complete the operation according to the prescribed rules, especially the tearing away of the iris to its very root, in consequence of bleeding, by which the parts are concealed from view; and in the attempt to remove the blood by pressure, the only available method, there is much risk of dislocating the lens, or of so injuring it as to cause opacity. When the lens is dislocated, the vitreous humour may be lost. But cataract may follow without this direct injury, as I think, by interruption of the nutrition of the lens through the disturbance set up in the surrounding nervous and vascular tissues. It is not correct to say that the cataract is only a consequence of the glaucoma; as I have seen it, produced quickly after the operation, when the iridectomy has been done because of rheumatic inflammation of the eye. I omit speaking much about the accidental wounding of the lens (not an uncommon event), because that will be attributed to bungling.

Then the eye-ball may suppurate—a disaster more imminent when a great deal of inflammation is present. In the legitimate making of an artificial pupil, a careful surgeon never operates until the activity of the disease which has closed the pupil has passed away, lest destructive inflammation with its contingencies arise.

The operation may be frustrated by the closing up of the pupil, and the gap newly made. The eye-ball may become atrophied. I should like to know how often the eye-ball has been extirpated, because of the ill results of iridectomy. Imperfect union of the edges of the tunic of the eye through which the incision was made, with the bulging of the new and imperfect tissue, occasionally takes place. Who will dare to gainsay all this! Two or more of these conditions might occur in the same individual. A gentleman with old rheumatic inflammation in both eyes, who saw enough to read the newspaper in a good light without glasses, in the interval of acute attacks, was doubly iridectomised against my advice; but two opinions were against mine, so I was set at naught. In the one eye the pupil closed; in the other cataract formed. A second iridectomy was done in the first eye. I met the poor fellow accidentally at a friend's house, able only to grope his way about. The cataract was shortly to be extracted.

Iridectomy destroys the integrity of the eye by interfering with refraction, adjustment, and the regulation of light to the eye. I never saw perfect vision after the operation; that is, no person so mutilated could see small things and distant, in different degrees of light, equally well with one of the same age, whose eye might be called normal and healthy. I have been careful to inspect this. A very imperfect idea is given in the reports of cases of the true condition of sight. A person may blunder over this or that sized type, a few inches from the face, with a pair of spectacles in a carefully arranged position as to the light, and yet have very imperfect sight. Several whose cases seemed in print to be all that could be desired I have found to be miserable cripples.

Iridectomy also spoils the appearance of the eye. To lessen this it has been proposed always to operate at the upper part of the organ. But the

German propounder of the operation objects to this on the score of difficulty, and great liability to accident.

[We append to this paper the opinion of Mr. WHITE COOPER on this subject.]

Its indiscriminate use is fraught with danger; it is far from a slight operation; serious evils not unfrequently attend or follow its performance; and it should be resorted to with the greatest caution, since I am convinced that many of the cases for which it is recommended are amenable to general treatment.—*British Medical Journal*, Jan. 2, 1864, p. 20.

72.—ON IRIDECTOMY.

By WILLIAM BOWMAN, Esq., F. R. S.

[Mr. Walton objects to the operation of iridectomy, requiring to know its *modus operandi* before adopting it.]

We know that in glaucoma *the globe is hard*, and that after iridectomy (and by iridectomy I always mean the operation *as performed for glaucoma, and properly performed*), *the hardness is reduced, and the equilibrium of the circulation restored*. When further research shall have explained *the rationale of the hardness*, we may hope to be nearer than we seem to be at present to the explanation of the *mode* in which iridectomy *reduces the hardness*. Meanwhile the most philosophical course is to apply the remedy for the sake of its proved benefit, rather than to discredit it, or decline to adopt it, because we cannot explain its whole mode of acting.

Several very interesting suggestions have, indeed, been made on this head, though none can hitherto be said to be more than plausible conjectures. Von Gräfe himself, with the candour and scientific spirit which distinguish him, does not, or did not lately, profess to explain it fully; and a view which I myself, at an early period, thought to have some probability, has been ably criticised by Donders, and shewn to be untenable, at all events in the form then given to it. But surely all such discussions as to the *rationale*, highly as they must interest the minds of those who are continually witnessing the actual reduction of tension by the operation, should not weigh for one moment against its performance when a patient whose eye is hard stands in present need of our help. Were Mr. Walton once convinced of the reality of the remedy, he would, I am sure, himself lay aside such an objection from mere motives of humanity.

Mr. Walton argues at length in favour of *paracentesis corneæ*, as doing all for the relief of hardness that iridectomy can do. "At once I say, that benefit is to be got, not through any direct effect on the iris, but solely in consequence of the evacuation of the aqueous humour. It is not, then, the iridectomy that does this; but that which takes place as an inevitable step of the operation, as a preliminary measure—namely, the *paracentesis corneæ*."

And then we have a long reference to Mr. Wardrop's excellent paper written half a century ago, and a profession of Mr. Walton's "greatest faith in the remedial efficacy of tapping the eye *in all inflammatory affections, and even under other states of disease*; and he has often found the repetition to tell, when a single operation has given but little or no result, and in very severe cases he has occasionally repeated the proceeding even several consecutive days. Yet he does not exalt the measure beyond the limit the originator modestly claimed for it." He goes on in the same vague general phrases: "It would not serve my purpose to do more at present than merely to state general results, for details." "Again and again, I have seen dispelled by the corneal tapping, *the premonitory symptoms of what would now be called glaucoma*." [Yet he presently takes pains to explain that those symptoms which are really of diagnostic value are, in his opinion, valueless; and that he does not feel able to diagnose glaucoma except in its last old-fashioned stage, as I shewed last week.] "I have repeatedly given relief by

discharging the aqueous humour in *many stages of ocular disorganisation*, when nothing else" [Was iridectomy tried?] "would relieve." However, he has his reservations. "I am anxious to prevent any young surgeon from supposing that tapping the eye is a *perfect panacea*. It is not so; neither is any other operation a *perfect cure for all idiopathic inflammatory affections*." He then, at length, does speak definitely of tapping in the disease which he recognises as glaucoma, "the bad old-fashioned disease called glaucoma, as understood by me, and by my teachers, Lawrence, Tyrrell, Dalrymple, and expressed by Mackenzie in his works. According to my experience it is a very rare disease; each attack of which, each paroxysm, inflicts a definite damage. The eye may be destroyed at once; or it may retain some amount of sight after several periods of renewed activity." Here, I presume, he has in view the inflammatory glaucoma, the acute, and perhaps the subacute, forms. Now, let us carefully mark what is his own experience of tapping in these, where his diagnosis shall not be questioned. "Tapping will often relieve, and so will iridectomy as a means of tapping." [He does not say that he has himself tried iridectomy in such cases while there was still some sight to be saved.] "Pain will be lessened, and perhaps the period of attack shortened. *I speak cautiously about the amount of substantial benefit to the eye, because I have so often seen all operations*" [Iridectomy in his own hands?] "*and treatment fail, and the eye perish.*"

Tapping, in fact, as I understand him, moderates the course and intensity of the disease, but nothing is said of its *arresting* it, of its *permanently relieving the tension* which destroys sight, nothing of any *recovery of sight*, or saving from ultimate disorganisation what he calls in another place "the wonderful mechanism of the glorious and precious eye."

The question here raised may appear to persons unacquainted with the recent literature of glaucoma, to have much importance. Certainly, if *one tapping* of the aqueous chamber would *permanently reduce tension* in glaucoma, iridectomy would be at once superseded: though if the *tappings* to be efficacious are to be *repeated*, iridectomy might still have advantages. But unhappily no such permanent result follows; and I think more ample experience only is needed, *together with a more exact discrimination of the glaucomatous condition*, to convince him that *paracentesis corneæ* is at best but a very transient means of reducing eye-tension in glaucoma. The puncture heals in the course of a few hours, and then the intraocular cause of exalted tension (whatever it be) remaining unredressed, the tension is immediately reproduced. For nothing is more remarkable than the rapidity with which the aqueous humour is secreted, and the orifice being closed, the *whole eye contents* are almost immediately restored to their former successive bulk, and the globe is hard again. If, indeed, *with glaucomatous tension, there coexist more or less active inflammation*, with all its secondary consequences and aggravated risks (acute glaucoma or the higher varieties of the subacute), one or several frequently repeated *tappings* of the cornea may often serve as a temporising measure to abate the inflammatory symptoms and reduce the severity of the attack; but the hardness will be found to remain, and with the hardness the certainty of eventual blindness at an earlier or later period. Thus iridectomy would still be necessary, while the delay the *tappings* would involve would probably much diminish the ultimate amount of sight saved.

Mr. Walton, in his work (*Surgical Diseases of the Eye*, 2nd edit., 1861, chap. xxvi), refers to Von Gräfe's memoirs on *Glaucoma* (translated in the Sydenham Society's volume for 1859, published in 1860, by Mr. Windors of Manchester, one who perfectly understands the subject), in such a way as to show that he has perused them. Let me also quote from the same most competent authority a passage on this question of tapping the eye in glaucoma, which has apparently escaped Mr. Walton's attention, to show that this practice has been long ago considered, largely tried, and effectively condemned.

"Another year (says Von Gräfe in 1858) has passed since I wrote my essay on *Iridectomy in Glaucoma*, for the third volume of the Archiv. I have

had many fresh cases, and I have operated on them at most different periods of the disease. So far as was possible, I have kept in view all the cases on which I had previously operated, for although the immediate improvement was clear enough, there was yet the possibility of its not being permanent. To my own observations have been added those of many of my colleagues, and now, when I have again to consider critically the question of treatment, I can at once and with pleasure declare, that I have not the least to retract of what I formerly advanced in favour of iridectomy. So that these cases, indeed, have ultimately been more favourable than they had expected." (Windsor's Translation, p. 359.) "The uncertainty of the result [of iridectomy] in the later stages of acute glaucoma, especially as regards duration, are so directly opposed to its completeness and durability in the acute period, that the advice to operate immediately and without hesitation, cannot be too urgent. I must most decidedly reject the recommendation to try first paracentesis,—advice which has been urged from unfounded ideas of caution. Three years' extensive experience has taught me, that the results of paracentesis are, in the infinite majority of cases, temporary only. It is true that when methodically employed, it removes the acute character of the disease, and palliates the symptoms; it does not, however, prevent gradual deterioration of vision. Within from three to four months, this was almost invariably found to be the case, on a careful examination of the field of vision. When with these results we compare those of iridectomy, *there can be no reasonable cause for hesitation*. By such trials of paracentesis, the time is lost for radical treatment; for the degree of recovery essentially depends on the length of time the eye has been already affected, and not simply on the condition of the symptoms. Besides, we may reasonably fear that the repeated disturbances of the ocular circulation—and every change of pressure must be considered as such—may render the case less amenable to a treatment, the value of which has been actually proved. My clinic presents a considerable number of cases, where one eye has been treated by paracentesis in former years, the other by iridectomy. In other cases where the treatment had been commenced with paracentesis, iridectomy was ultimately performed on the same eye, owing to the deterioration of vision, and to our having become acquainted with its beneficial action. *Only a glance at the fate of these different eyes is needed, to induce the abandonment of all other treatment in glaucoma than that of the immediate performance of iridectomy.*" *Id.*, pp. 363-4.

It will hardly be suspected that I should not have put the same practice to the test on some of the numerous occasions that have been afforded me of doing so, when at various stages of various forms of *typical glaucoma*, for one reason or another, iridectomy could not be opportunely performed, or would not be at once acceded to by the patient. I may state that I have been *uniformly disappointed* as to any *permanent* result, or any saving of sight by this method, with very few exceptions indeed, the phenomena of which only served to support the general conclusion.

Let it not be supposed, however, that *paracentesis corneæ* is an operation of which the value in *proper cases* is undervalued by me. I esteem highly the debt we owe to its eminent proposer, Mr. Wardrop, still happily among us, only I reject it in *typical glaucoma* as a permanent remedy; reserving it for certain cases of the glaucomatous class in which tension arises intercurrently in conditions not originally glaucomatous, and when the cause of tension appears to be so far temporary, that if relieved once, or sometimes even a few times consecutively, by puncture, it ceases to recur; and yet where, if unrelieved by the local outlet, it persists with all its usual ulterior consequences; only yielding to surgical relief. I have particularly found this puncture useful in the tension that sometimes follows needle operations for clearing the pupil after extraction of cataract, and I would earnestly counsel surgeons in any such case, even when the operation has been in itself of the slightest character, to watch narrowly for the occurrence of tension. The pain that is apt to come on from the second to the eighth day often originates in tension, and a timely puncture (perhaps repeated once or twice if necessa-

ry), carried also once or twice through the iris if it bulges, will generally allay it in a very satisfactory manner.

I also need hardly say that I employ the useful little operation of tapping the aqueous chamber in some of those cases of *non-glaucomatous inflammation* of the cornea, anterior chamber, and iris, in which Mr. Wardrop recommended it. Here it sometimes, *though there be no actual lens*, sets forward the eye on a course of recovery, where the symptoms had previously been tedious or threatening. Very much might be written on the various conditions here alluded to, were this the place for doing so.

I must add, however, some remarks on the operation of *paracentesis corneæ*, lest it should be thought by any to be a proceeding unattended with danger. In fact, it is often a very delicate and critical proceeding, and it is never free from those risks which belong to every penetration of the aqueous chamber, especially when shallow, by an instrument. If it is to be repeatedly performed, these risks are repeatedly incurred. They have not been disguised by Mr. Wardrop, who says, "The chief difficulty arises from the pain occasioned by the pressure on the eyeball, necessary to keep open the eyelids; for until a sufficient portion of cornea is brought into view, and the movements of the eyeball completely under the management of the operator, the introduction of the knife should not be attempted."

And after describing the mode of holding the eye, and the share "the assistant" must take in the proceedings, he says very truly, that the patient is very apt to start when he finds the instrument coming in contact with his eye. I may add, that he is very apt to start also while the instrument is turned on its axis, and held stationary in the wound (as very properly advised by Mr. Wardrop, as well as by Mr. Walton), in order to favor the escape of the aqueous humour. And when the fluid is thus escaping, and the iris and lens are falling more forwards towards the cornea, the severe pain often felt is very apt to cause instinctive movements of the patient's head or eye, very dangerous to the lens, especially if the cornea be at all cloudy, so that the point of the needle is obscured from view. In glaucoma, also, the anterior chamber is so frequently very shallow, that, if *paracentesis corneæ* be attempted, the risk to the lens is much increased, even on the first entrance of the instrument, especially if the eye be also inflamed, and the patient rendered more acutely alive to the pain by having undergone the same treatment on previous occasions. Mr. Walton himself says of *paracentesis* (*Surgical Diseases of the Eye*, 2nd edition, 1861), "I believe that this evacuation is seldom practised in the present day, and that for many years it has been discontinued. Mr. Lawrence writes forcibly against it, prefacing his objections with the statement, that he has tried it in some instances, but with so little benefit, that he has not been induced to insist on the practice," p. 48; and again, "Should chloroform not be used, considerable difficulty will be found in exposing and steadying the globe of the eye; *when the patient is insensible*, the operation is simple," p. 49. Compare this, by the way, with the following objection to iridectomy in Mr. Walton's recent letter: "Iridectomy is an operation that demands very considerable nicety in its execution, and is done better under the influence of chloroform. This is not in itself objectionable, but it has significance in my argument. There are many frequent unavoidable dangers attendant on it" [whether on the use of chloroform or iridectomy is not clear], "immediate and remote, of which the profession are ignorant, and they have been kept in the back-ground." Mr. Walton says of *paracentesis*: "Common care will save the iris from injury, and the lens will be spared if the points of the instrument be kept forwards," p. 49. It may be said with equal propriety of iridectomy, that common care will save the patient from all the operative risks, provided that the eye is made quiet by chloroform, and the operator is well acquainted with the exact anatomy of the parts he is dealing with. Now, if chloroform is to be given whether *paracentesis* or *iridectomy* be performed, most patients would prefer that which has to be done but once, with a prospect of permanent benefit, to that which would probably have to be repeated on several successive occasions, without the surgeon even then being able to promise a real arrest of the disease. And this particularly

applies to the subjects of glaucomatous disease, often weakly, nervous, or elderly persons, already depressed by pain and the dread of blindness.

It may not be out of place also to note here from one of the most eminent authorities, Dr. Jacob, a passage relating to the operation of tapping the eye for staphyloma (the eye distended by glaucomatous tension), and which I find in Mr. Walton's work, p. 333: "All you want is to let out all the aqueous humour that will flow, and to leave an opening likely to heal by first intention, until you see how your patient bears injury; mind that, for I can tell you that a very small matter sets up awful inflammation in some people. I have not seen either afford the least benefit, except temporary relief from pain. In a few days or weeks there has been a re-accumulation of fluid, and a return of the symptoms. In one case, after the second tapping, acute inflammation with suppuration followed." Mr. Walton thus quotes Dr. Jacob, *dropsos* of a case, under his own care, of staphylomatous distension of the whole eye, evidently of glaucomatous type. Mr. Walton tried this plan of repeated tapings, with external pressure, and ultimately performed "*abscission*." Probably a timely iridectomy would have allayed pain and saved the blind globe from abscission.

I by no means think, indeed, that one not habituated to operations on the eye can always safely undertake either paracentesis or iridectomy. In itself, no doubt, paracentesis is the simpler. The question, however, is not which is the simpler, but which is the *more effectual for the permanent relief of tension*.

If in the passage above quoted Mr. Walton means that the risks of the operation of *iridectomy* have been kept in the background, I venture to differ from him. I think it is not so. They are well understood, and have been repeatedly stated. It is easy on paper to magnify these risks; no doubt much will depend on the operator's skill and delicacy of hand, and something on the individual peculiarities of the case. I have no wish to under-rate the difficulties; rather I would describe them in order to explain how they may best be overcome. I believe they may be, in a very great degree, obviated, or, at least, reduced within very narrow limits. But were they much greater than they are, they would, in most cases, be wisely and cheerfully encountered, under the alternative of impending blindness.

[The following account of the operation of iridectomy, published in 1862, by Mr. Bowman, is very clear and concise. It is quoted by him in answer to some objections by Mr. Walton.]

"The operation is best done when the patient lies on a sofa on his back, with the surgeon standing at his head. I prefer to use chloroform, though I have often operated without it. It should be given so as to render the patient completely passive; for the great delicacy of the operation requires perfect quietude of the eye, lest the steps should not be severally completed in the most perfect way. My own opinion undoubtedly is that there is hardly any person to whom chloroform may not be safely administered; though, it is true, some objects demand more care in its exhibition than others. The sickness may usually be avoided by taking care that no food be in the stomach at the time; and if it occur during the operation, the steps must be simply delayed while it lasts, not varied in any way. If the sickness is very straining, so as to distend the vessels of the head and face, I usually close the eye, and gently compress it by the fingers on the lid, during the efforts at vomiting. I have not seen any harm happen from such vomiting, when the incision has been properly made; not too extensive, and not too far back from the corneal margin.

"I always keep open the lids by the wire speculum, which an assistant holds a little forwards if it tends to exert pressure on the globe. It is well for the surgeon to be able to use the right or left hand indifferently in making the incision, as he can then select the most convenient spot. I have always preferred to make the iridectomy nearly or quite upwards; because I believe this direction to be as good as a lateral one in reference to the visual field, and the upper lid then covers the gap in a way useful both optically and for

appearance sake. It is, however, rather more easy, on the whole, to make the iridectomy to one side than upwards.

"I make the incision in one of two methods, according to the size of the anterior chamber. When there is space enough, it is best to use the triangular lancet-shaped blade, inclined at an angle on the flat, and which I believe is used generally abroad, as well as by Von Gräfe. Having selected a place for the incision, I seize the conjunctiva with proper forceps immediately opposite, and thus fix the globe without making any pressure upon it, or pulling it from its bed. The lancet is then thrust in so as to enter the anterior chamber at its rim immediately in front of the attached border of the iris, and is carefully advanced towards the opposite side so as to form an opening of the required size; and if the opening cannot thus be made as large as is desired, it is enlarged at one angle on withdrawing the blade. When, however, the chamber is shallow, I prefer what I at first always used; namely, a narrow extraction knife, running its point along the rim of the chamber for the requisite extent, and making the counter-puncture much as in ordinary extraction. Thus the instrument avoids the pupillary region and the lens. The operation is more difficult where the chamber is shallow. Whichever instrument be employed, it enters a little behind the apparent junction of sclerotica and cornea, in the sclerotica, and in entering the rim of the anterior chamber, it usually passes across that junction and through a very little of the corneal tissue just in front of the pillars of the iris.

"As the instrument used in making the incision is withdrawn, the aqueous escapes; and it is well to let it do so gradually, and to keep the point of the instrument towards the cornea rather than towards the lens. The iris may now be found either to remain in the chamber or to prolapse. If the former, the small slightly-curved iris forceps are to be introduced (closed) into the chamber, and made to seize the iris opposite the middle of the incision, about midway between its pupillary and outer border. The iris is then brought outside the chamber and divided with small scissors, on one side of the forceps, from its pupillary to the ciliary border, the forceps pulling it gently at the same time, so as to ensure this complete division of it. The end held by the forceps is then torn from the ciliary attachment as far as the angle of the incision, and even dragged upon a little, so as to detach it beyond the angle, and then divided with the scissors quite close to the angle. The cut end then retreats within the chamber. The opposite side of the prolapsed part is then seized and dealt with exactly in the same manner. No iris should be left in the angle of the incision, lest the healing process be imperfect, and subsequent irritation occur.

"If the iris at once prolapse on the completion of the incision (it is often bulged by aqueous humour of the posterior chamber), the forceps need not be introduced within the incision, but may seize it outside. The less any instrument enters the anterior chamber the better, for fear of damage to the lens.

"If any blood flow into the anterior chamber during the operation, it is well to allow it to escape before it coagulates. This is best done by inserting a fine scoop within the lips of the incision (not into the chamber), and at the same time by making, if requisite, slight pressure on the eye by the forceps which holds it. The cornea should not be pressed on, lest the lens receive any injury; and, rather than run the slightest risk, the blood may be allowed to remain, as it is very soon dissolved by the aqueous humour, and flows out or is absorbed.

"The operation just described ensures the excision of a complete segment of the iris, from pupillary to ciliary margin, of a width determined by the size of the incision, and which may be usually about a sixth or a seventh of the whole circle."

Wishing as far as possible to elucidate every point on which difficulties are felt, I will notice some few additional objections of Mr. Walton. Such are the following:—"It is not always possible to complete the operation according to the prescribed rules, especially the tearing away of the iris to its very root, in consequence of bleeding, by which the parts are concealed

from view; and in the attempt to remove the blood by pressure, the only available method, there is much risk of dislocating the lens, or of so injuring it as to cause opacity."

Answer. See above in my account of the operation. I think the lens could hardly be dislocated or injured, unless the incision be made too far back, or pressure be made rudely or too near the lens-region. It is very rare indeed to find this part injured in an iridectomy properly performed. Cataract also very rarely follows as a consequence of the operation.

Mr. Walton. "But cataract may follow without the direct injury, as I think, by interruption of the nutrition of the lens though the disturbance set up in the surrounding nervous and vascular tissues."

Answer. The disturbance is *already set up* in the surrounding nervous and vascular tissues by the *glaucomatous disease*. The iridectomy by its efficacy in arresting this, relieving pain, and equalizing the circulation, must apparently have a direct contrary tendency to that attributed to it here. Cataract may occur in connection with glaucoma, when the iridectomy has been performed, in either of three ways.

1. It may have preceded the glaucoma and the iridectomy, the glaucoma having come on during the progress of the cataract; of this I have seen several instances. In these cases the glaucomatous complication has first to be dealt with by iridectomy, and at a subsequent stage, when the tension has been reduced, and the usual indications for cataract operation have arisen, the cataract may be dealt with. In such cases I have never seen the operation of iridectomy hasten the progress of cataract. (See *Ophthalmic Hospital Reports*, vol. iv., p. 51.)

2. The cataract may be glaucomatous cataract, i. e., that sort of opacity of the lens which usually takes place at an advanced stage of glaucoma, when the nutrition of all the ocular tissues has been interfered with through long continuance or intensity of tension, and the disturbance of circulation thereto pertaining. It is rare for this form of cataract to occur while any sight remains worth attempting to save by an iridectomy. But it must be borne in mind that iridectomy by its power of relieving tension may often render great service to an eye already blind from glaucoma, by reducing its inflammation and putting a period to the protracted sufferings of which it is too often the seat, and which are proof against other means short of excision or the seton. Here, of course, Mr. Walton's objection does not apply,

3. A cataract might arise as a direct consequence of the operation. This might be by direct wound of the lens, which certainly ought not to happen; by bruising or otherwise injuring it, without direct contact of the instrument; this also ought not to happen, and if it did so, must not be charged to the operation, but to the operator. While the steps of the operation were less familiar to us than now, and its liabilities had been less studied, this happened sometimes; once to myself; but now it could hardly occur; it ought not to occur.

Von Gräfe has seen on a very few occasions the formation of cataract after iridectomy when the lens had not been touched, and he was led to attribute it to a bulging of the equator of the lens on the side of the iridectomy, with a rupture of its capsule into the canal of Petit. Such an occurrence must be regarded as most rare, and as having no force as an objection to iridectomy, performed as it is for averting blindness. Besides, when the glaucomatous state is arrested, a cataract may be operated on at a proper period with good prospect of recovery, as I have myself proved in several instances; so that even if unhappily cataract should by any accident follow the operation in the way of consequence, it is not an irremediable calamity, though of course to be deplored. But what is the alternative? That all glaucomatous patients are to be deprived of the benefits of iridectomy, or be abandoned to the method of repeated tappings with its eventual resulting blindness?

Mr. Walton. "Then the eyeball may suppurate—a disaster more imminent when a great deal of inflammation is present."

Answer. Suppuration, except as an incident of the last disorganised stage of glaucoma, is extremely rare. The inflammation of glaucoma has not a

suppurative tendency. It is more allied to the serous and hemorrhagic inflammations of other parts. At all events so rare is suppuration, that I hardly remember more than one or perhaps two examples of it, and in one of these the phlegmonous form of inflammation supervened upon the serous after a paracentesis of the vitreous humour, which for several hours both gave marked relief to tension and to pain, and also improved vision. An eyeball sometimes suppurates after the most trifling operation on its interior, but Mr. Walton would not therefore refrain from such interference when it was reasonably indicated. I think, undoubtedly, suppuration is more rare after glaucoma-iridectomy than after extraction of cataract. I do not, however, here include cases in which it is performed on old blind painful glaucomatous globes, not for recovering sight, but for ease. Then suppuration may sometimes prove a happy event; or atrophy without suppuration, which is also recounted by Mr. Walton among the objections.

Mr. Walton. "The operation may be frustrated by the closing up of the pupil, and the gap newly made." This may happen in the glaucomatous stage of iritis or irido-choroiditis; or when iridectomy is undertaken under certain circumstances (as for recurrent iritis, &c.,) without undue tension; and it must then often be accepted as an intermediate condition on the way towards ultimate recovery of sight. But this objection does not correctly apply at all to iridectomy performed for typical forms of glaucoma, where the pupil is certainly left large enough.

Mr. Walton. "Imperfect union of the edges of the tunic of the eye through which the incision was made, with the bulging of the new and imperfect tissue, occasionally takes place." This is what Von Gräfe has recently described at length, with many interesting particulars, under the term *cystoid cicatrization* (see *Ophthalmic Hospital Reports*, vol. iv., p. 53.) To the translation of his paper, I have added some remarks embracing my own experience on this subject up to last October, and might add here some additional particulars, but that it would carry me too far. Von Gräfe has met with this in a greater or less degree in about one-fifth of his cases. It is generally harmless, sometimes perhaps even salutary, by affording a yielding point at which any remaining tendency to eye-tension may so far find relief as to save the eye from its injurious effects. In some very rare cases it may perhaps prove a source of eventual trouble. There may be found means of disarming the operation of iridectomy of this liability to this cystoid scar.

This and many other subordinate questions are now engaging attention, but appear to me to form no argument at all against an operation which constitutes the only remedy yet known for typical glaucoma.

Mr. Walton. "I should like to know how often the eyeball has been extirpated because of the ill-results of iridectomy?"

Answer. I cannot tell. The question might have been asked by an opponent of the operation of placing a ligature on one of the great arteries, when that seemed the only rational and scientific method of treating a disease threatening life, "I should like to know how often has a limb or a life been sacrificed because of the ill-results of this tying of the great arteries?" The severity of the disease and the infinite variety of individual conditions under which it occurs will cause some among a multitude of cases to have an unfortunate result. Every medical man will understand this from his experience of any single disease, especially if it be one most apt to occur in the feeble and the aged. But of all the operations for the sinking or removal of an eye that has become blind from glaucoma (while some have had iridectomy previously performed, almost always for the relief of pain, not for the restoration of sight, which was already lost), the large majority had certainly fallen under that sad necessity through the want of a timely performance of iridectomy.

One further objection of altogether a different nature has still to be met. Mr. Walton calls iridectomy "an operation which breaks the structure and disarranges the wonderful mechanism of the glorious and precious eye." "*Iridectomy*," he says, "destroys the integrity of the eye by interfering

with refraction, adjustment, and the regulation of light to the eye. I never saw perfect vision after the operation; that is, no person so mutilated could see small things and distant, in different degrees of light, equally well with one of the same age, whose eye might be called normal and healthy. I have been careful to inspect this. A person may blunder over this or that sized type, a few inches from the face, with a pair of spectacles in a carefully arranged position as to the light, and yet have very imperfect sight. Several whose cases seemed in print to be all that could be desired, I have found to be miserable cripples."

Answer. An amputation necessary to save life cannot rightly be called a "mutilation;" or, if it be so, it is a mutilation of which science and humanity may boast. If iridectomy be proved necessary to save sight—even partial and imperfect sight—the patient may well be grateful for *an eye which sees*, though it have been rescued from blindness at some sacrifice of its physiological perfection. Mr. Walton says he has been careful to inspect the results of iridectomy on vision. He has at least declined to inspect cases which I freely offered to show him; and an inspection of which would have rendered my explanation on this point, and probably my whole reply, unnecessary. The fact is, that an iridectomy, especially if performed upwards, leaves the eye but very little the worse as an optical instrument. It is only disadvantageous by in some degree uncovering the marginal part of the lens and admitting some rays which do not form so perfect a focus on the retina as those which still pass through its centre. The act of adjustment or accommodation, as it depends on the ciliary muscle, is not affected by it; and if it were, the subjects of operation being generally of an age when presbyopic glasses are necessary for near vision, the variation in the power of the convex glass necessary can be of no importance. And, indeed, I have often seen a patient after iridectomy read with a weaker glass than before, owing, apparently, to the glaucomatous disease often presenting hypermetropia or increased presbyopia, as one of its conditions, as long ago pointed out and explained by Von Gräfe, and to the iridectomy having lessened this.

But, after all, an exact examination of the state of vision after a successful iridectomy, where the retinal function has been preserved entire, and therefore where the *optical* state may be separately scrutinised, often clearly proves that the iridectomy leaves the eye with the power of seeing distant objects perfectly, according to the most searching tests, and also (with glasses suited to the time of life) able to read the smallest type. I venture, therefore, to say expressly, that Mr. Walton, in raising this objection, shows himself to have had as yet too few opportunities of examining the real results of the operation, where it has been suitably performed.

The last objection is, that "iridectomy also spoils the appearance of the eye." *Answer.* If the operation be performed upwards, the pupil retains its natural aspect, being partly covered by the upper lid, and if performed inwards, which is the other direction usually followed, its new shape is hardly visible to an ordinary observer. I never heard an objection on this score from any patient.

In conclusion let me add that as, in this and the preceding letters, the subjects of glaucoma and iridectomy have been treated in the necessarily partial aspects incidental to a controversial discussion, and of course with no pretension to be a complete account of the modern doctrine and treatment, I desire my paper of August 6th, 1862, published in the *British Medical Journal* of October 11th of that year, to be regarded as explaining and supplementing whatever may have been here incompletely expressed.—*British Medical Journal*, Jan. 30, and Feb. 6, 1864, pp. 133, 165.

73.—ON IRIDECTOMY.

By S. BROWNE, Esq., L. K. Q. C. P., Belfast.

[After devoting considerable time and attention to the subject, Mr. Browne has come to the conclusion, that the *exact* nature of the disease of the eye named "glaucoma" by the iridectomists, has not yet been accurately defined, nor has the operation for its cure been based upon the recognised principles of scientific surgery.]

My individual experience of glaucoma and iridectomy may be summed up very briefly. During the last four years, I have carefully observed every case of eye-disease, more than five thousand in number, that has come before me; and I have not been able to recognise more than one per cent. which I could classify as glaucoma; namely, deep-seated inflammation of the tissues of the eye-ball; dilated pupil; probable effusion within its structure; and tension of the entire globe; severe pain, with impairment or almost complete loss of sight; the disease at the same time running a more or less rapidly destructive course, and not being controllable by medical treatment. But I have seen, within the same period, a large number of cases of acute inflammation of the deep tissues of the eye—with the symptoms of effusion; namely, dimness of vision, in several degrees—and appreciable tension of the globe. These were cases of choroiditis, or chronic iritis; were perfectly manageable; and in them, under proper treatment, the eyes were restored either to tolerably good or to unimpaired sight.

In some of the cases referred to as glaucomatous, I performed, with all the care I could exercise, the operation of removing a portion of the iris, amounting to about one-sixth of its bulk; and although by the step I have alleviated, in some instances only temporarily, the sufferings of the patient, I regret that I have not in any case been able to restore the sight to a more perfect condition than has followed after constitutional treatment and the evacuation of the aqueous humour; and that, too, in cases with analogous symptoms.

By these remarks it will be seen that, in this country, acute or chronic glaucoma is a disease fortunately of rare occurrence; and that my personal experience of iridectomy for its treatment has not created in me any sanguine hopes of its efficacy. But here I must guard myself from being misunderstood. I simply refer to the operation of iridectomy as applicable to the treatment of the so-called glaucomatous affections of the eye; as, in common with every ophthalmic surgeon, I have found the formation of an artificial pupil by incision and removal of a portion of the iris—in fact, by iridectomy—in suitable cases, frequently successful in restoring very useful sight. I may likewise remark, that I have found iridectomy a good operation in cases of cataract with synechia posterior, which I have extracted by linear section.

My own experience of iridectomy in the treatment of glaucoma having only afforded me negative results, I naturally felt anxious to read the correspondence which has appeared, hoping that I might receive important information, and possibly have my views either changed or modified; but, alas! after all the ink that has been shed in the controversy, I find that I am not much better informed upon the subject; and that I cannot consistently alter the opinions which I had already formed, founded upon my personal observations and on my independent judgment. And certainly I now feel myself not only justified in thus holding by my former views, but also in publishing them before the profession; for I maintain that it is the bounden duty of every man, who practises general or special surgery, to investigate the principles of every novel proposition touching his art, and to adopt or reject it manfully, according as his reason and experience may guide him.

I have already stated my reasons, based on personal observation, for rejecting iridectomy as applicable to the treatment—I dislike the term "cure,"—it is not nicely professional—to the treatment of glaucoma; and I shall now briefly state why it is that I still reject it, even after the lengthened, I cannot say learned, correspondence which has taken place regarding the operation.

In the first place, then, I find that its advocates are at variance relative to the pathology of glaucoma. Several of them, indeed, appear to ignore every pathological consideration; and there are others who really do not seem to comprehend the matter under discussion, though strongly advocating the operation of iridectomy as the "cure" in certain undefined conditions of the eye; while, at the same time, they forget every principle of surgery in their haste to vote upon the question!

The second consideration suggested by the correspondence, is the vast numbers of cases of the so-called glaucoma, that appear "as thick as leaves in Vallombrosa" in and about London! Well, not having seen them, I cannot say that such did not and do not exist; but I may be allowed to entertain a shrewd suspicion that many of the cases which on this side the Channel we regard as simple though severe inflammation of the deep structures of the eye, are pressed into the service of the iridectomists, the admirers of the "new" and "brilliant" operation. Otherwise, how is it that, while we have here the usual amount of cases of choroidal, corneal, and iritic disease, we see so very few of those dire affections that can only be cut short by cutting up the iris? I maintain that we have the usual proportion of severe inflammation of the deep structures of the eye, and that these are quite amenable to treatment without iridectomy; and I likewise maintain, after more than twenty years' experience in an ophthalmic institution and in a general hospital, that I have not seen two per cent. of acute or chronic glaucoma, as I understand that disease, which I have already defined—cases, in fact, which were not controllable and controlled by suitable medical and surgical interference; iridectomy not forming a part of the treatment.

Then, as regards "tension" of the eye-ball, which *now* seems to be the great point, the one index to guide the ophthalmic surgeon in selecting the cases for iridectomy, I unhesitatingly affirm that, if any surgeon will presume to operate upon every eye in which there is failing vision, and in which he thinks he discerns undue tension of the globe, he will take a most unjustifiable step, and will act in violation of sound pathological principles. And I say this the more readily, as the iridectomists have not failed to affirm that the opponents of the operation are doing a vast amount of wrong in not adopting it. But why do I say so? Simply because I have, over and over again, treated cases, and have under my observation at this moment patients, where the eyes, suffering from acute choroidal, corneal, and iritic inflammation, have or had the symptoms that have been assigned to glaucoma, failing sight and tension of the eye-ball being prominent signs; and yet, by proper treatment, iridectomy not forming any part of that treatment, the eyes have recovered, or are recovering, with useful or good sight; and that is as much as the iridectomists can claim for their most brilliant operation! Nay more, I have lately had a patient with goitre under my care, in whom the eyes were prominent and *tense*, with impaired powers of sight; yet just as the enlarged gland diminished in volume, so did the abnormal condition of the eyes recede also. Would any man in his senses, and with a just regard to the honor of our noble profession, operate in such a case because he had discovered that dimness of sight and tension of the eye-ball were present.—*British Medical Journal*, Jan. 30, 1864, p. 136.

74.—ON IRIDECTOMY.

By JAMES HOGG, Esq., Assistant Surgeon to the Royal Westminster Ophthalmic Hospital.

[The following is Mr. Hogg's opinion of the utility of the operation of iridectomy, and it explains the practice adopted by the other surgeons to the Westminster Ophthalmic Hospital.]

I do not *altogether reject iridectomy*; but, on the contrary, I—I may say *we*—employ it whenever I think that by so doing I can benefit my patient. It is true, the casual visitor to our hospital may not have seen this operation resorted to so frequently as at some other institutions for the treatment of

eye-diseases; but this in part arises, or apparently so to myself, from the glaucomatous disease falling less frequently under our observation and care than it would appear to do elsewhere; and also from another circumstance, that if I see the case at the onset of the attack—in the acute stage, when it is nearly always accompanied with pain and increased tension of the eye-ball—I confess I have so much confidence in the simpler and safer operation of my colleague, Mr. Hancock, that I immediately resort to section of the ciliary muscle; and this is generally attended with so much relief to the more urgent symptoms, that the after-treatment becomes a matter of little or no anxiety as to the ultimate condition of vision. But, in the more advanced stages of this disorder, I have no hesitation whatever in saying, so far as I have been able to form an opinion, that iridectomy appears to me to be the operation which holds out the best chance for the patient.

I may add that, as a rule, I more frequently resort to iridectomy in *irido-choroiditis*; for the relief of which, indeed Desmarres, the originator of the operation, so successfully employed it.* This affection appears to ensue as a consequence of the inflammatory action extending from the choroid to the iris, and ultimately to the retina. Such cases, in the early stage, very much resemble glaucoma, and quickly run on to closure of the pupil or total destruction of the vision. It is, therefore, incumbent upon us to make a free iridectomy. The details of Desmarre's method of performing this operation will be found at page 263, last edition of my *Manual of Ophthalmoscopic Surgery*.—*British Medical Journal*, Jan. 23, 1864, p. 108.

75.—SUB-ACUTE GLAUCOMA OF BOTH EYES—TREATMENT BY IRIDECTOMY.

By J. G. HILNICE, Esq., Dublin.

[The patient was an unmarried lady of the age of thirty-five. Ten days previously to consulting Mr. Hildige, she had noticed for the first time, that the vision of the left eye was indistinct; after four or five days intense pain set in in the eye-ball and temple, followed almost immediately by partial loss of vision.]

On examination, I found the eye in the following state:—Eyeball of stony hardness, slightly prominent, and painful on pressure; conjunctiva injected, particularly in the neighbourhood of the ciliary ligament; ciliary vessels prominent and tortuous; pupil dilated; iris discoloured, of a greenish hue, and arched forward so as almost to obliterate anterior chamber; the lens and its capsule were quite transparent, but the vitreous humour was so clouded as to prevent ophthalmoscopic examination. She had lost all useful vision with the eye, being unable to recognize the features of persons standing close to her, or to distinguish a single letter of No. 20 of Jäger's test type, letters about one inch long, when held close to her face. The pain in the eye-ball and temple was continuous, and almost intolerable. The right eye was commencing to show symptoms of the disease also, but as yet there had not been any pain in it, and the sight of it was still good. I performed iridectomy on the left eye, on the following morning, her sight having been tested immediately before the operation by Mr. Colles, President of the Royal College of Surgeons, Ireland, and found to be in much about the same state as on the previous day. On visiting her in the evening, she expressed her satisfaction at the complete relief from pain resulting from the operation. During the night intense pain set in in the other eye, and on the following day this eye also was found to be attacked by glaucoma in its sub-acute form. Iridectomy was immediately performed, with almost instantaneous relief; no irritation following either operation, which, in both instances, was done upwards, the slight irregularity of the pupils being completely

* Von Gräfe has been so constantly referred to as the originator of iridectomy, that it is well I should remind the profession that the eminent French oculist, Desmarres, devised and practised the operation for the relief of *irido-choroiditis*, long before the first-named surgeon took it up.

covered by the eye-lids. Vision of both eyes gradually improved from this date up to December 16, on which day she called on me at my request for the purpose of having her sight tested in the presence of Mr. Colles, and other professional friends whom I had invited to be present at her examination. Both eyes had recovered their normal tension, no injection of conjunctiva, pupils of normal size, and the irides had assumed their natural colour (grey). The left lens was slightly hazy towards its external margin; the right was perfectly transparent. Both optic discs presented appearances of congestion, and were difficult to distinguish from the surrounding parts of the retinal field. Vessels scarcely discernible. Vision was now so good that she could count the panes of glass in a window at the distance of between thirty and forty yards with the naked eye; she read No. 8 of Jäger's test type also without glasses, and with No. 2½ cataract glasses she read small type with each eye separately, to the amazement of the bystanders.

I have not the slightest doubt on my mind that, had iridectomy been delayed but a few days longer in this case, both eyes would have been irretrievably destroyed.—*Medical Times and Gazette*, January 2, 1864, p. 8.

76.—ON DIVISION OF THE CILIARY MUSCLE.

By HENRY HANCOCK, Esq., Surgeon to the Royal Westminster Ophthalmic Hospital.

It was my intention to have related the annexed cases, showing the result of the operation of "division of the ciliary muscle" in certain diseases of the eye, without any observations, had it not been for statements which have been made in the *Dublin Quarterly Journal* for February, p. 112, and which, if uncontradicted, would have the effect of depriving me of the credit of originating that operation. It is quite true that similar assertions have been made elsewhere, but they have emanated from those who, on the one hand, have strenuously opposed the operation without giving it a single trial; and, on the other hand, from those who, having been thwarted in their endeavours to appropriate the credit of its introduction to themselves, consider it in accordance with the dictates of truth and honesty to turn round and condemn it altogether, and declare that it is not original—that it is merely a revival of the exploded method of "paracentesis" of the eyeball. I have hitherto passed by the attacks of such opponents as unworthy of notice; but when a gentleman comes forward and candidly acknowledges that he had been inclined to give the operation his most strenuous opposition, and to laugh at the idea that simple division of the ciliary muscle could effect any benefit in such diseases as glaucoma and irido-choroiditis, but that having tried it in several cases, he has found the results so satisfactory that he is determined to give the operation a full trial; when, I repeat, this gentleman goes on to assert that, after all, this operation is not original, and endeavours to support his assertion by reference to an author of the highest authority, the case is altogether different, and I now unhesitatingly offer a few observations to controvert these statements, and to prove how incontestably erroneous they are.

Referring to the operation of "section of the ciliary muscle," the Reviewer of Mr. Hogg's work, on "Ophthalmoscopic Surgery," in the *Dublin Quarterly Journal*, observes: "A very short time ago we would have taken very strong ground indeed in advocating the advantage of iridectomy in either glaucoma or irido-choroiditis, and, perhaps, a smile of considerable doubt might have been seen playing about the corners of our mouth when speaking of 'section of the ciliary structures' as a substitute for it; but we have lately had opportunities of testing both operations, and our results, from simply plunging a narrow-bladed knife into the eye through the ciliary structures, have been so satisfactory, that we feel determined for the future to give full trial to this operation before having recourse to the more serious proceeding of iridectomy." He continues: "Division of the ciliary muscle and ligament is, however, no new operation. . . . The old paracentesis oculi was simply

a division of the ciliary structures, and all the advantages which the older ophthalmologists derived from paracentesis were, we believe, deducible from the fact, that in performing that operation they divided the ciliary structures, as can be seen by the following directions for its performance, taken from Mackenzie. . . . The puncture should be made with a broad iris knife at the usual place of entering the needle in the operation of couching. The instrument should be pushed towards the centre of the vitreous humour, turned a little on its axis, and held for a minute or two in the same position, so that the fluid may be allowed to escape; . . . thus, of necessity, dividing the ciliary structures."

I thank the reviewer for this frank declaration of his experience, but I must be excused for dissenting *in toto* from his propositions. I assert that "section of the ciliary muscle" is a new operation, and that it had never been practised as a curative method in diseases of the eye before I introduced it to the notice of the profession.

I deny that "section of the ciliary muscle" and the "old paracentesis oculi" are identical; and I also deny, not only the *necessity*, but the *possibility*, of dividing the ciliary structures in "paracentesis oculi," performed as directed by Mackenzie. The reviewer ought at least to have stated with something like precision the spot indicated by Mackenzie for making the puncture, and the reasons which that gentleman assigned for recommending it; but this he does not do. The puncture, we are told, "should be made at the usual place for entering the needle in the operation of couching;" but whether it is to be made at a twelfth, an eighth, a sixth, a fourth part of an inch, or at any other distance from the cornea, is left to the imagination of the reader. In the absence, therefore, of this information, I would refer to the fourth edition of Mackenzie's work, p. 779, where, describing the operation of couching, he says: "The needle is to be entered at the distance of *one-sixth* of an inch behind the temporal edge of the cornea. If this rule is not attended to, but the instrument is entered either much nearer to the cornea or much farther from it, the *ciliary processes* in the one case, and in the other the retina, can scarcely escape being injured." Whilst antecedently, at page 778, he states: "The parts which must be wounded (in couching) are the conjunctiva, sclerotic, choroid, and vitreous humour. The parts to be *avoided* are, the *ciliary processes*, the retina," &c. Mackenzie also points out that the needle should be directed towards the centre of the vitreous. So that, whilst paracentesis oculi and the first steps of couching are the same, it is very evident that division of the ciliary structures is one of the principal points to be guarded against in both these operations. And I would ask how the ciliary muscle and processes can be divided by entering a broad iris knife one-sixth of an inch from the cornea, and directing its point towards the centre of the vitreous humour? It is anatomically impossible. Moreover, the non-identity of the two proceedings is still further illustrated by their results; since Mackenzie (page 899 of the same edition), after describing the operation of puncturing the sclerotic, adds: "A *transient* amelioration of vision, as well as relief from pain, is *sometimes* the result of the operation." Whereas experience has proved the results of division of the ciliary muscle to be lasting, patients upon whom I operated nearly four years ago being still in the enjoyment of their recovered sight.—*Lancet*, March 19, 1864, p. 321.

77.—ON OBSTRUCTION OF THE EUSTACHIAN TUBES, WITH A DESCRIPTION OF POLITZER'S NEW METHOD OF TREATMENT.

By Dr. T. McCall Anderson, Glasgow.

[The use of the eustachian tubes is not only to allow access of air into the cavity of the tympanum, but to permit escape of mucus from it. If the mucus does not escape, as happens when an obstruction occurs, it accumulates, fills up the cavity of the tympanum, and thereby leads to very serious injury of that organ. Dr. Anderson does not wish to enter into the contro-

versy as to whether the tube is always or only occasionally open, but contents himself with stating one or two facts, which prove, incontestably to his mind that it is only occasionally open.]

If you blow air through your nose by means of Politzer's instrument, which I shall fully describe afterwards, and at the same moment perform the act of swallowing, you will at once experience a sense of fullness in the ears which does not disappear until you repeat the act of swallowing two or three times; but, if you blow air through your nose when you are not swallowing, no air enters the eustachian tubes, because the levator and tensor palati muscles have not been called into play and the faucial orifice remains closed.

This may be well illustrated if you get a patient who has lost the drum of one ear, and whose eustachian tube is pervious. If you perform this experiment while he is swallowing, air at once rushes out of the ear with a loud whistling noise, but if he does not swallow during it, no air comes out of the ear at all, because the levator and tensor palati are quiescent, and the faucial orifice is not open.

Again, if you expire forcibly, and at the same time keep the nose closed, after the manner of Valsalva's experiment, which I shall explain more fully hereafter, you will perceive the same fullness in the ears as in the previous experiment, owing to an excess of air being driven into the cavity of the tympanum; and this fullness does not disappear till the act of swallowing is repeated, by which means the faucial orifice of the eustachian tubes is opened, and the excess of air allowed to escape.

And if the membrana tympani is carefully examined with a good speculum, during either of these experiments, it will frequently be observed that, at the moment the fullness is experienced in the ears, the drum is pushed outwards and remains in that position until the act of swallowing is repeated two or three times, when it retreats to the position which it occupied before the experiment.

Lastly, the effect on the ears of descending in a diving bell has been cited by Toynbee as proving the same thing. "It is well known," says he, "that during the descent the compressed air filling the external meatus produces a sensation of weight, and often of pain, by pressing the membrana tympani inwards. This sensation can, however, be at once eased by an act of swallowing, whereby the condensed air is allowed to enter the tympanum through the eustachian tubes, and thus afford support to the inner surface of the membrane."

These three instances, then, prove that the faucial orifices of the eustachian tubes are not constantly open, but only when the levator and tensor palati muscles are called into play.

But how are we to ascertain that the eustachian tubes are pervious, or rather what are the *essential* symptoms of their obstruction?

In all cases there is a certain amount of deafness, which is very considerable if the obstruction be complete, but of course the exact amount of the deafness, even in that case, will be regulated to a considerable extent by the morbid condition which has closed the tube. Thus, let us suppose two cases, in both of which there is complete obstruction, but in the one this is due to thickening of the mucous membrane at the faucial orifice only, while in the other, it is caused by an old chronic inflammation of the cavity of the tympanum, which has produced adhesions between, and rigidity of, the ossicles—we must expect to meet with a greater degree of deafness in the latter than in the former. But what we have specially to bear in mind just now is, that one of the essential results of closure of the tube, no matter from what cause it arises, is a certain amount of deafness.

Pain, though a common, is by no means a necessary symptom in uncomplicated cases, but tinnitus is almost always present to a greater or less extent. Then the appearance of the drum often affords us valuable information. It has fallen inwards towards the posterior wall of the cavity of the *tympanum*, for the reason which I previously stated, so that it is much more *concave* externally than it ought to be, so much so in some cases, that the

stapes can be distinctly seen. In consequence of this altered position of the drum, the head of the malleus projects very prominently forwards, so as to catch the eye whenever the speculum is introduced, while its handle is drawn backwards, and appears much thinner and smaller than when in its natural situation: and in extreme cases it is hardly visible at all. Then the surface of the drum is dull, glassy-looking, and irregular, owing to its altered position; and, instead of one triangular bright spot passing downwards and forwards from the point of the malleus, we often observe two or three of varying shapes and sizes on different parts of its surface. Sometimes we find a milkiness or dense opacity of the drum, but only in cases due to, or complicated with, disease of its coats, or of the cavity of the tympanum.

Toynbee describes an ingenious method of ascertaining if the eustachian tubes are pervious or not. "It has already been shown," he remarks, "that during the act of deglutition, with the mouth and nose closed, a small quantity of air is passed through the eustachian tubes into the tympanic cavities; a process which is attended with a sensation of fullness in the ears. The entrance of air into the tympanum can be distinctly heard by means of an elastic tube about eighteen inches long, each end of which is tipped with ivory or ebony; an instrument which I have named the *Otoscope*. One end of it is to be inserted into the ear of the patient, and the other into that of the medical man, who must take care that no portion of the tubes touches any neighbouring body. When the patient swallows a little saliva, the mouth and nose being closed, if the eustachian tube be pervious, at the moment that he feels a sensation of fullness in the ear, the surgeon will hear most distinctly a faint crackling sound, produced apparently by a slight movement of the *membrana tympani*. This crackling sound is that most usually heard; but in some instances where the mucous membrane of the tympanum is thick, a gentle flapping sound will be detected in its place."

Then there is *Valsalva's* method, which consists in causing the patient to propel air into the cavity of the tympanum by making an effort at forcible expiration, the mouth and nose being closed. Many patients do not understand what they are meant to do if you give them directions such as the above, and they are much more likely to comprehend and act upon your request if you say—"Blow your nose, but at the same time hold your nose tightly, so that no air can escape." While he is carrying out your instructions, you must watch him carefully, and you soon come to know whether he has understood your meaning; and after you are satisfied of this, put your stethoscope against his ear, or make use of *Toynbee's* otoscope, and tell him to repeat the operation, but without moving his head in the least. If the eustachian tubes are quite pervious a peculiar "thug," as it is called, or sound like that produced by inflating a minute bladder, is elicited, which is audible both to patient and physician. In most cases there is a certain amount of sound produced, even where the eustachian tubes are almost completely impervious, especially if the obstruction is at the tympanic orifice, thus permitting the transit of air through the greater portion of the tube, so that the physician requires carefully to educate his ear in order that he may be able to discriminate the sound which indicates complete patency—a sound which no mere verbal description can teach. The patient, if the tubes are pervious, not only hears a sound, but also experiences a distinct fullness and disagreeable feeling in the ears, which, however, disappears when he swallows two or three times, so as to open the faucial orifices and allow the escape of the compressed air.

Toynbee's diagnostic test is superior to *Valsalva's*, in as far as every patient understands what he has to do, and is able to do it; while it is decidedly inferior to it in as far as a very small current of air is propelled with very little momentum into the cavity of the tympanum, in consequence of which the sensation of fullness in the ear is not nearly so distinctly felt by the patient, and the crackling sound not nearly so distinctly heard by the physician.

If you are not satisfied with the information conveyed by means of *Toynbee's* or *Valsalva's* experiments, you may have recourse to the eustachian

catheter, the use of which has been so fully described in standard works that it is not my intention to occupy your time this evening by discussing it; but I quite agree with Toynbee in thinking that, as a means of diagnosis, it is very rarely required.

Let me now allude shortly to some of the more usual morbid conditions which are accompanied by a temporary or permanent, partial or complete, closure of the eustachian tubes; in doing which I shall touch upon the indications of treatment merely, and shall omit for the present all mention of the mechanical treatment, to which I shall subsequently refer.

Occlusion of the faucial orifice is very often met with in delicate children, especially after fevers or debilitating diseases. In them the tonsils are frequently enlarged, and the mucous membrane of the throat, nostrils and eustachian tubes hypertrophied, and secreting abundantly. So great, in some cases, is the thickening of the lining membrane of the nostrils, that the patient requires to breathe almost entirely through the mouth; and when, in addition, the tonsils are very large, he is not only apt to snore while asleep, but likewise to speak with a nasal twang. Occasionally, during the act of blowing the nose, swallowing, coughing, sneezing, or any other act which calls the levator and tensor palati muscles powerfully into action, the patient experiences a loud crack in the ear, followed by a sudden improvement in hearing, which lasts from a minute or two to one or two days, and gradually subsides. The amount of improvement at these times depends upon the amount of the previous deafness, and upon whether the obstruction has been, for the time, completely or only partially removed. The oftener this occurs, and the longer the improvement in hearing continues after each crack, the more hopeful must we be of the ultimate success of our treatment, especially if the patient did not experience it till after the treatment was commenced.

Adults are subject, though not nearly to the same extent as children, to a similar obstruction of the eustachian tubes from like causes, but much more frequently in connection with acute or chronic coryza, relaxed sore throat, or bronchitis. The tonsils are not nearly so often in a state of hypertrophy.

The treatment in children consists in a careful regulation of the diet, attention to the state of the stomach and bowels, and the internal administration of cod-liver oil and tonics, especially those containing iron. Exercise in the open air is to be recommended, and a cold sponge bath in the morning, the patient being afterwards rubbed with a flesh brush or rough towel till thorough reaction is established, else harm is to be expected instead of benefit. Counter irritation by means of mustard poultices applied to the angles of the jaws, and astringent and stimulating gargles are likewise of service. In some cases it is of use to paint the fauces with a solution of caustic (3ss.—3i.) every second day, or to touch the orifices of the eustachian tubes with solid caustic by means of Toynbee's caustic-holder; and it is often of service to remove the patient from a relaxing to a more bracing climate, from which the best results may be anticipated. I am not an advocate like Mr. Yearsley for the excision of the tonsils, unless they are so large as to interfere with the breathing, as I believe that most cases can be cured without any such operation. If the nostrils are stuffed, it is useful to make the patient close the mouth, and breathe entirely through the nose occasionally; and I have observed benefit from making him draw cold water, or a slightly astringent solution, through the nostrils twice or thrice daily. In adults the treatment is that of the affection which has produced the obstruction, combined with the use of local applications, such as those which I have just indicated.

In many cases the obstruction takes place at the upper or tympanic orifice of the tubes in connection with morbid conditions of the cavity of the tympanum.

I pass now to the last division of the subject, the mechanical treatment of obstructions—a method of treatment which is applicable to those arising from any morbid condition, except, perhaps, acute inflammation in the tympanic cavity. By this means alone we are enabled, in some instances, to effect a cure—in those, namely, in which the obstruction is merely a mechan-

ical one, or in which the inflammation which originally produced the obstructions has subsided, leaving the eustachian tubes blocked up. In these, the mechanical is the only treatment which is of any service. But in the majority of instances, the inflammation which was the exciting cause of the obstruction is still in operation, in which case means must generally be adopted, such as those indicated in the previous sections, to remove it, as well as mechanical treatment to open the tube.

There are three methods of operating mechanically upon the eustachian tubes:—

1. By eustachian catheterism.
2. By Valsalva's experiment.
3. By Politzer's method.

1.—Eustachian catheterism has been so thoroughly described, and its merits so carefully discussed in standard works—especially in Kramer's work on diseases of the ear, which has been translated for the Sydenham Society, and in Mr. Yearsley's work, entitled "Deafness Practically Illustrated"—that I must, for want of time, refer you to them; but I shall take the opportunity presently of contrasting its merits with those of the other methods.

2.—Valsalva's experiment, the nature of which I previously explained, has been used hitherto chiefly as a means of diagnosis, but I have been in the habit of extending its application to the treatment of obstruction of the tubes, and not unfrequently with success. I never prescribe this method till I have thoroughly satisfied myself, by personal observation, that the patient understands how to perform the operation. I then tell him to do so three or four times daily; cautioning him at the same time, not to expire too forcibly for fear of injuring the delicate structures of the ear, and informing him that it is only by persevering in his efforts that he can hope to be successful in making air enter the tympanum, and in improving the hearing. It is only the other day that I was consulted by a lad who had obstruction of the eustachian tubes from thickening of the mucous membrane at their faucial orifices, and whom I treated according to this plan, to the exclusion of everything else, in order to test its efficacy. When he came to me, my watch was heard by him at the distance of two inches from the left ear, and three from the right. On his return a fortnight afterwards, the watch was heard six inches from the left ear, and more than two feet from the right. I could cite other cases did time permit, but I think I have said enough to show you that, in some instances at least, Valsalva's experiment is of value, not only as a means of diagnosis, but also in the way of treatment.

3.—The instrument of Dr. Politzer of Vienna, is that to which I wish more particularly to direct your attention. This instrument was described, and its use illustrated by cases, in a recent number of the *Wiener Medizinische Wochenschrift*; and it was from the perusal of a pamphlet containing a reprint of this paper, that I first had my attention directed to the subject.

The instrument consists of a piece of catheter, open at the end and several inches long, to which is attached a pear-shaped india-rubber bottle, about the size of the fist. The patient is told to take a mouthful of water, and the tube is then introduced about half an inch into one or other nostril. The nose is then closed by the finger and thumb of the left hand, while, with the right, the india-rubber bottle is suddenly and forcibly compressed, and the moment before it is squeezed, the patient is told to swallow the mouthful of water. Instead of a piece of catheter, I sometimes use an elastic tube, and not unfrequently I use an elastic tube alone—and for this purpose Toynbee's otoscope serves the purpose well, or a common elastic catheter, open at the end—and blow through the tube while the patient swallows, instead of propelling cold air through it by means of the india-rubber bottle; but I am not yet prepared to say which method is the most satisfactory.

The principle of this treatment is easily explained. The act of swallowing brings the levator and tensor palati muscles into play; the soft palate rises, thus separating the cavity of the nose from the mouth and throat, and

the faucial orifices are opened. Now, as the patient swallows while the air is being driven through the nostrils, it, being unable to descend into the throat or mouth, and the faucial orifices being open, rushes up the eustachian tubes into the cavity of the tympanum, unless the obstruction resist the force of the current of air.

If the obstruction be removed, the patient experiences a fullness in the ears and his hearing is immediately improved, provided always that the obstruction was the cause of the deafness. The same treatment requires to be repeated every day, or every two or three days for some time, as the improvement in the hearing which takes place after each operation gradually diminishes, in the majority of cases, and it is only after repeated trials that it remains permanent. But if there be no obstruction of the tubes this operation not unfrequently diminishes the hearing power for the moment, owing to the drum being forced outwards too much, and to the congestion of the ear which results from the sudden rush of air into the cavity of the tympanum.

In some cases, and especially in those obstructions connected with thickening of the mucous membrane of the fauces, the sudden improvement is such as to astonish the patient, and to cause him to burst forth with an exclamation of gratitude for the service rendered; but you must be careful not to promise too much beforehand, unless you have had considerable experience of the class of cases which are likely to be improved by it.

In cases which are improved by this treatment you will naturally ask, How often is the operation to be repeated? My answer is, Repeat the operation till the hearing becomes perfect, and remains so for some time after the last inflation of air, or till no further improvement takes place for the last three or four operations, and no retrograde movement in the intervals.

Politzer's treatment possesses these advantages:—The operation is so easily performed that it can readily be done by any practical physician, and requires no special instruction. It causes neither pain nor uneasiness to the patient, so that it is not objected to, except by some young children and nervous females, and then only from fear. It is altogether devoid of danger, and there is no obstacle to its performance, unless the absurd timidity of some persons.

Eustachian catheterism, on the other hand, is a difficult operation to those who have not had much experience of it, and therefore necessitates special instruction. It generally causes more or less uneasiness, or even pain, if not very skilfully carried out. Some patients object to it very strongly, and for this reason it is occasionally inapplicable, and particularly in the case of young children, in whom mechanical treatment oftenest holds out a prospect of success. It is not altogether devoid of danger, and sometimes the bones of the nose exhibit abnormal forms, or the mucous membrane is the seat of tumours, which prevent the introduction of the catheter. But then, there are a few obstinate cases of obstruction which resist Politzer's treatment, and which yield ultimately to catheterism.

Valsalva's experiment has this advantage, that it can be carried on at home without the presence of the physician (although, to be sure, so in some cases can Politzer's treatment); it requires no apparatus, and it can thus be tried in conjunction with one of the other methods of treatment, especially if the patient reside in the country, and cannot come often to obtain advice.
—*Glasgow Medical Journal*, April, 1864, p. 1.

78.—INSUFFLATION OF POWDERED ALUM IN CHRONIC CATARRH OF THE MUCOUS MEMBRANE OF THE AUDITORY MEATUS AND TYMPANUM.

Mr. HINTON has found the application of alum in powder very effective in certain forms of chronic catarrhal inflammation of the meatus and tympanum which are otherwise often tedious in yielding to treatment. It is especially

suitable when there exists a red and granular condition of the membrana tympani, or mucous membrane of the tympanum, with or without minute polypoid growths, such as often last from childhood even to the latter years of life, and which are so frequently met with, all acute symptoms having long subsided. The alum is easily introduced, after the ear has been gently syringed, either on a moistened camel's hair brush, or, which seems often more efficacious, it may be blown into the meatus through a piece of india-rubber tubing. After a few applications, efficiently made, the unhealthy condition will often be wholly removed, and with it the discharge, the hearing being at the same time, unless other lesions are present, greatly improved.—*Medical Times and Gazette*, Jan. 2, 1864, p. 11.

79.—A SIMPLE MEANS OF INFLATING THE TYMPANUM IN SOME FORMS OF DEAFNESS.

Mr. HINTON, Surgeon Aurist to Guy's Hospital, in forms of deafness dependent on obstruction of the Eustachian tubes from thickening of the mucous membrane, or from accumulation of mucus, has frequently used a method of inflating the tympanum, which has been recently introduced by Politzer, of Vienna. The plan of treatment is founded on Mr. Toynbee's discovery, that the Eustachian tube is naturally closed, but that it is opened by the tensor and levator palati muscles during the act of deglutition. Acting on this fact, Politzer conceived that air introduced with moderate pressure into the nostrils during the act of swallowing, the nose being at the same time closed, would be a very efficient means of overcoming any resistance which might exist in the internal auditory passages. During swallowing, the velum palati is raised, and, if the nostrils are also closed, the upper part of the pharynx forms a shut cavity, within which the in-pressed air operates with great effect, while the tube is at the same time expanded by the above-named muscles. The method Politzer proposed was the use of an india-rubber bottle, to which a portion of flexible bougie is attached in place of the ordinary nozzle. This being introduced into the nose, and the nostrils firmly closed over it, the patient, who has previously moistened his mouth with water, is told to swallow, and at the same moment the bottle is compressed by the hand of the surgeon. Air seldom fails to enter the tympanum, and its entrance may be heard by means of the ordinary otoscope, or its effect upon the membrana tympani witnessed through the speculum. Mr. Hinton has found that a simple piece of india-rubber tubing answers every purpose, and is often even more efficient. One end of the tube is introduced into the patient's nose, which is firmly closed over it, the other is placed in the surgeon's mouth, who then blows while the patient swallows. In the great majority of cases the method is at least as efficient as the introduction of the Eustachian catheter, while it is free from many of the objections to which indiscriminate Eustachian catheterism is open. The results are often very striking.—*Medical Times and Gazette*, Jan. 2, 1864, p. 10.

SYPHILITIC AFFECTIONS.

80.—SUBSTERNAL TENDERNESS A DIAGNOSTIC SIGN OF ACQUIRED SYPHILITIC TAIN.

By Dr. HENRY CRITCHLEY BRODRICK, Madras.

[Ricord casually alludes to substernal tenderness as indicative of the existence of constitutional syphilis. It was from this that Mr. Brodrick's attention was called to the symptom, and he has since carefully made observations on the subject.]

Substernal tenderness can only be detected by pressure over the bone, and when searching for it formerly, I used to *knead* the bone with the fore and middle fingers, carefully, from the manubrium to the xyphoid cartilage. In a case of suspected constitutional syphilis, if the patient be asked if he has got a pain in his breast bone, he will probably answer in the negative. The medical man should then *knead* the sternum carefully and gently along the whole of its course, and the tender spot will generally be found at the commencement of the lower third. With much practice and observation in this class of cases I now generally succeed in touching the tender spot at once, to the great surprise of the patient, previously quite ignorant of the existence of this tenderness. If substernal tenderness be found, I believe we are quite safe in assuming that the subject of it labours under acquired venereal taint, which may have been masked by divers symptoms, and be quite unsuspected both by the patient and the surgeon. It often furnishes a clue to the cause of very anomalous symptoms, and a most invaluable guide to us in treatment. For the past eighteen months I have been *kneading* patients' sternums most diligently, and have been not a little laughed at for the same by those not previously aware of the significance of substernal tenderness. The native doctors attached to the Malwa charitable dispensaries, which I superintend, all now practise this palpation in suspected cases to the very great benefit of their patients. Although the existence of substernal tenderness is, I believe, unerringly significant of venereal dyscrasia, it must be borne in mind that a patient may be constitutionally syphilitic without manifesting this particular sign. But, when detected, in it the physician has a very valuable guide for treatment. Substernal tenderness is, no doubt, produced by a periosteal inflammation, slight in degree, and may be in its immediate effects, such as pain and tenderness, inappreciable to the patient. The iodide of potassium must be prescribed, under which the tenderness quickly subsides with other symptoms, which, mysterious before, this sign has taught us to decipher. I have hunted diseases to their source at once, in scores of cases, since I became aware of the existence and the importance of this diagnostic sign, and the rapid improvement of such cases under the specific treatment indicated above has invariably confirmed my diagnosis. I speak confidently on this point; that I am justified in this confidence any one can test easily in his practice. Constitutional syphilis prevails very largely in Malwa, so that I have a large field in which to practise palpation of diseased sterna amongst the sick coming to my dispensaries. I have had a limited experience of this diagnosing amongst Europeans, but I have found substernal tenderness in at least twenty such, and in as many the sign has led to the successful treatment of the disease it indicated. In a suspected case, then, look for this tenderness; it will usually be found at the commencement of the lower third, occasionally in the upper third, and very seldom in the space intermediate. When it is once made out, the subject of it should at once commence taking the iodide of potassium.—*Edinburgh Medical Journal*, Nov. 1863, p. 468.

MIDWIFERY, AND THE DISEASES OF WOMEN, ETC.

81.—ON THE USE OF WIRE LOOPS AS SUBSTITUTES FOR PESSARIES, &c.

By DR. CHARLES CLAY, Manchester.

[Dr. Clay recommends these wire loops to suspend the womb and to rectify its malpositions when necessary, instead of the usual contrivances, and we think that they are very likely to answer the purpose.]

Stem pessaries are certainly a great improvement, as they allow the vaginal canal a chance of being restored, and afford some hope to the patient that ultimately the instrument may be dispensed with, and a cure effected. By making the stem of the elastic wire instead of porcelain was my suggestion in 1842; by this improvement I avoided the possibility of injury from fracture, which accident I have witnessed *more than once*, accompanied by very severe hemorrhage from a wound of the vagina, by the broken end of a porcelain stem pessary. The elasticity also of my instrument entirely does away with that vibratory jar often felt in walking, riding in conveyances, or in going down a flight of stairs, with a porcelain stem pessary. I have seldom found a case that has not yielded to this instrument when properly applied; but, like others, I have also found that the expense is too serious for a large proportion of those afflicted. Consequently I feel the greater pleasure in offering my new suggestion, which I will now endeavour to explain. There are three instruments, viz: Fig. 1, a wire loop; Fig. 2, horseshoe wire; Fig. 3, a double horseshoe wire. These three are applicable to all the malpositions of the uterus. The wire is what is termed No. 13 or 14 in thickness, and when doubled up and soldered in the middle part about twelve to thirteen inches long. The mode of application is very simple, and will be easily understood. Suppose the case one of Antiversion, the instrument (Fig. 1) is introduced, guided by the index finger of the right hand, the loop is placed over the cervix, and then the os uteri drawn forward, assisted by the thumb pushing back the fundus uteri; when the uterus is placed in its natural position, the loop is closed partly by pressure with the finger and thumb, so as to hold it *without strangulating*; the stem of the instrument is then moulded by the finger to the curve of the vagina outwards, leaving the entrance of the urethra a little to one side; the moulding of the stem is now continued to the front of the abdomen (on which a bandage has been previously placed); the open ends of the wire are now fastened to the bandage by large pins, or the ends forced up two slots in the bandage, and when the points emerge at the top of the slot the points are bent downwards to secure them (as in Fig. 4). The narrow bandages round the thighs are to keep the main bandage from rising upwards. Suppose it a case of Retroversion, the horseshoe wire (Fig. 2) is used, introduced in the same way; the horseshoe is placed on the front of the cervix and pushed back to its proper position, which, when obtained, the stem is moulded and secured as before, as shown in the plate. If a case of Prolapse, the double horseshoe end is, when introduced, regulated so as to hold the os uteri, and then raised to its proper position, and the stem moulded as in the two former instances, and secured in the same way. It will be seen at once that all species of obliquity yield to these applications, and need no further description. To make the *simplicity of these instruments* and their cheapness more apparent, I present

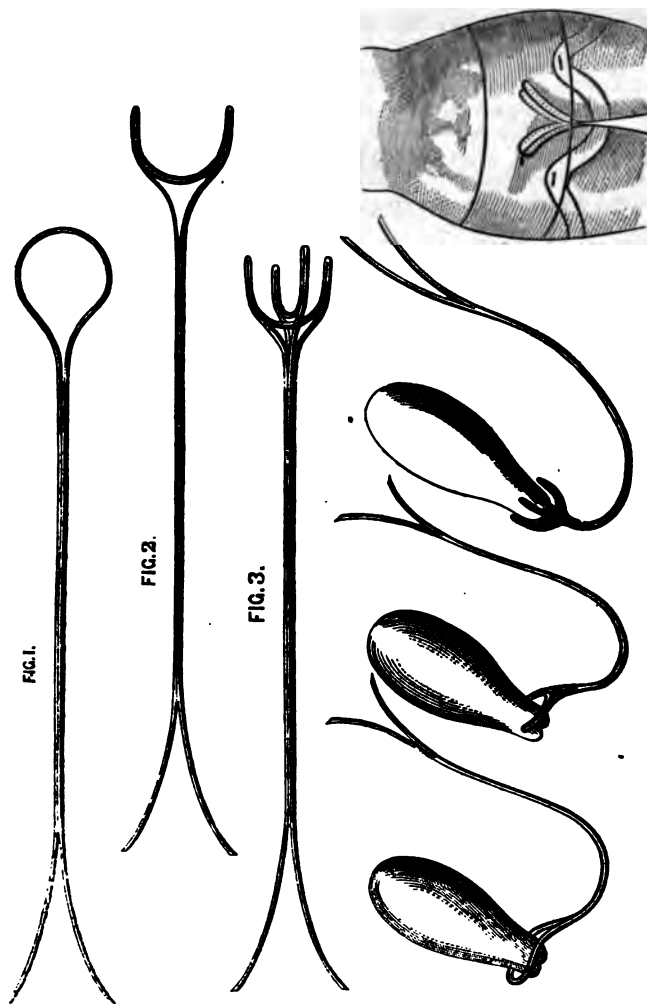


Fig. 1. For Antiversion.—Fig. 2. For Retroversion.—Fig. 3. For Prolapse.

the Society with two sets of instruments, *one* more carefully finished and tinned over, the cost of the set of three being (without tradesmen's profits) about 9*d.*, or 3*d.* each. The plain ones, which I make myself, and get soldered for about one penny each, answer every purpose required. Whether these instruments are tinned over or remain in their original condition as copper wire is of no moment, as in either case they keep much cleaner than in any other material. It will be seen at once that these instruments occupy so little space that there is not the slightest obstruction to means being used whilst wearing them for restoring the parts to their normal condition, or in keeping the vaginal canal cleanly at the same time the menstrual discharges are not impeded.—*Obstetrical Transactions*, Vol. V., 1864, p. 181.

82.—REPORT OF FIVE THOUSAND CASES OF MIDWIFERY.

By J. THOMPSON, Esq., Kilmarnock.

[In 1855 Mr. Thompson published a Statistical Report of 3,300 cases of midwifery. Since that period he has attended 1,700 more, making a total of five thousand.]

From the commencement of practice I have attended six thousand cases, and used the forceps one hundred and thirty times. In the whole of these cases the short forceps alone were employed, and with the exception of two cases, to which I shall afterwards have occasion to refer, were used not only with facility, but with perfect success. If the long forceps are really required as often as is usually set forth in those works that treat on this subject, it seems at least a little strange, that not a single instance of the kind has occurred to me in the course of more than thirty years' experience, and in a practice as large as falls to the lot of most men. This will appear not less wonderful when I state, that I have met with almost every other case of conceivable difficulty, rare as some of these undoubtedly are; and yet I have never met with what is universally stated and believed to be a very common occurrence, namely, a case in which the use of the long forceps has been found to be indispensably necessary. I am perfectly ready to admit, that many things may have occurred in the practice of others that have never once happened to myself, and that it fairly comes within the domains of an ordinary possibility that the long forceps may have been required; but what I insist on is this, that if they are really necessary as often as some authors would have us believe, is there not something more than a possibility, is there not a probability, that out of six thousand cases, I must surely have met with a single and solitary instance, in which I could not have succeeded in effecting delivery without the assistance of the long forceps? But up to this hour no such case has presented itself; the short forceps have thoroughly and successfully answered every purpose. If I had been possessed of a pair of long forceps, it is very likely that some time or other I might have been induced to try them, and of course failed to perceive the fact which I now am endeavouring to establish; but never having felt the slightest necessity for them, I have not as yet thought proper to make such an investment. It is quite true that I have met with a case in which there was a difficulty in using the short forceps; but the same difficulty would have been equally great with the use of the long. This was a case in which there was an adipose tumour growing from the posterior wall of the vagina, about the size of an orange, and of course obstructing the passage. Here the head of the child was long detained above the brim of the pelvis, and where the use of any kind of forceps held out but little hope of immediate relief. Still in this apparently very unfavourable case, I succeeded in delivering with the short ones. On referring to my note-book I find the following statement regarding it:—At 8 p. m. of the 28th May, 1855, I was called to visit Mrs. S. In former confinements she had been remarkably easy, her pains being very natural and effective. On examination I discovered a tumour situated in the hollow of the os uteri, and as large as a full-sized orange. The head was felt presenting normally, but as high up as the finger could reach, the os uteri being as fully dilated as this condition of matters would allow. From the position of the tumour, and the space which it occupied in the basin of the pelvis, it seemed at first impossible that delivery could be accomplished, unless the tumour could either be pushed upwards into the abdomen so as to allow the descent of the head, or that the head itself should be broken up by the perforator and crotchet. I made repeated attempts to push the tumour out of the way, but failed altogether in changing its position in the slightest perceptible degree. In these circumstances I determined to wait a few hours, in order that I might see what progress would be made by the regular and unassisted efforts of nature. This I was induced the more readily to do, because the pains were neither frequent nor severe, and the case had not as yet by any means assumed a serious aspect. In the course

of four hours the progress made was very little indeed. As the patient lived two miles out of town, and as I was unprovided with instruments of any kind, I resolved to return home, leaving word at the same time, that in the event of the pains becoming more urgent, I should be immediately sent for. At four a. m. of the 19th, the husband came with the information that his wife was now a great deal worse. Having supplied myself with forceps, perforator and crotchet, and trocar, I set out with considerable anxiety as to what the issue of this case was likely to be, more especially as the patient was of a very delicate constitution. I now found that the head had come somewhat lower, and that the tumour was becoming a little flattened by the pressure of the advancing head, which, however, was still too high to permit of an ear being felt. In the course of a short time I succeeded in the application of the forceps, the lock being fairly within the vagina when first applied. By acting gently and along with the pains, the head was delivered in about half an hour, the body soon followed, and shortly afterwards the placenta. The mother seemed a little exhausted, and the pulse was as high as 120; the child was healthy and well. The tumour was now felt greatly flattened, and did not appear to occupy one half of the space which it did at the beginning of the labour. Mrs. S. made an excellent recovery, without the occurrence of a single unpleasant symptom, and in little more than the usual time. On the 9th June I made another examination, and found the tumour as large as before, the os uteri being closely pressed up against the pubes. I have since delivered this patient a second time in precisely similar circumstances, and by the same means, without the occurrence of any untoward symptom.

Almost every one who has written on this subject agrees in representing the long forceps as a much more formidable instrument than the short ones.

Smellie, the inventor of the long forceps, was so fully aware of the danger of fatal contusion and laceration of the uterus and vagina necessarily incurred by the application of the long forceps, when the head of the child remained above the brim of the pelvis, that he did not venture to exhibit the instrument to his pupils, from the dread that it would be misapplied; and it appears he always used and recommended the short forceps.

Denman says—"It behoveth every person who may use instruments in the practice of midwifery, to be well convinced of the necessity before they are used, and to be extremely careful in their use that he does not create new evils, or aggravate those which might be existing. The preference which ought to be given, in reason, of one kind of forceps to another, is merely because one instrument may be more handy and convenient than another; for an intelligent and skilful man would be able to apply and use those of any form or size in such a manner that they should answer his purpose; as an expert surgeon would be able to amputate a limb with a knife of any kind."

Dr. Blundell states, that in violent hands "the long forceps is a tremendous instrument; force kills the child, force bruises the soft parts, force occasions mortification, force breaks open the neck of the bladder, force crushes the nerves: beware of force therefore—*arte, non vi.*"

Dr. Lee says that "when Dr. Hamilton was at one time on a visit to London, the use of the long forceps was one of the subjects of conversation I had with him, and I was astonished when he informed me, that he had entirely for some time laid aside the short forceps. On further inquiry, however, it appeared that in no case did he ever use the long forceps until an ear could be felt; thus admitting that he never employed the long forceps where it was possible to deliver with the short ones, and to derive all the advantage which could be obtained from such means with much less risk."

If this observation of Dr. Hamilton's be correct, and it is in perfect coincidence with my own experience and observation, then perhaps I may be permitted to ask where is the necessity for the long forceps at all; certainly in no case of this kind (and it is the very kind of case selected by this gentleman, in which he thinks the long forceps ought to be used) would any competent authority at the present day ever think of delivering by any means but the short forceps. It is no doubt quite true that it would be per-

feetly easy to deliver by the long forceps; but if it can be done quite as well with the short ones, then surely it will be admitted that there is no necessity whatever for the long forceps. In regard to those cases which are set forth in every work on the subject which I have happened to peruse, and where the presentation of the head through some cause or other remains so long above the brim of the pelvis, that from danger to the mother it becomes a matter of imperious necessity no longer to delay, but to deliver by the long forceps, I think I may, under a becoming sense of the importance and responsibility of the statement, venture to affirm that they are altogether fictitious and illusory. This state of matters could only arise from one of two causes—either the brim of the pelvis was so contracted as to render it physically impossible for the head to pass through; or the action of the uterus itself was so irregular and spasmodic as for many hours to make little perceptible progress. In the first case, I think, no one will attempt to deny that it would be a very difficult thing indeed to apply the forceps; but even granting that this difficulty had been overcome, would it not be a very dangerous thing to use them? but setting aside the danger altogether, would not such an attempt to bring down the head prove entirely fruitless and abortive? In the second case, where the head is detained above the brim through the instrumentality of irregular action, not only does such a kind of labour entail no danger whatever to the mother, but in consequence of the os uteri being but partially dilated the application of the forceps becomes all but impossible, more especially with a presentation so high up in the pelvis. In the first instance the application of the forceps could answer no purpose of a useful kind; in the second, the exercise of patience will eventually, effectually, and safely cure the difficulty, and at least bring the head within easy and successful reach of the short forceps. In the whole of the six thousand cases which constitute the amount of my private practice, including at the same time every case of difficulty in which I was called upon to assist others, I have only met with seven instances in which I did not readily succeed with the short forceps. The first was a case where the arm had come down along with the head, and where the practitioner in attendance was satisfied that the foetus was dead before I arrived. Here the forceps had been tried and failed, and delivery was effected by the perforator and crotchet. The second was delivered by the same means, the forceps having failed in former confinements. The third case was one of greater difficulty than usual. This was the patient's second confinement. Her first confinement had been long and tedious; sloughing of the vagina had taken place; and as a necessary consequence, adhesions had occurred to such an extent as nearly to close the vagina. I had seen this patient about two months after her first confinement, and had then used the bistoury pretty freely, but as afterwards appeared, not to a sufficient extent. Her next confinement took place at a considerable distance from this, under the care of an excellent and experienced practitioner. When I arrived at the patient's house, I found that she had been ill for many hours, and that her distress was very urgent indeed. On examination I ascertained that the vagina was still so much contracted, as to render it impossible for the head to pass. Again I used the bistoury in different places, and to such an extent as to leave no doubt of a sufficient permeability. Immediately afterwards I applied a pair of long forceps which the medical attendant had with him, but failed to bring the head into the basin of the pelvis. My friend now made a patient and protracted attempt, but was not more successful. The perforator and crotchet were applied, and with these I succeeded in delivering the patient, who recovered without a single bad symptom.

In the fourth case I was asked by a friend to visit a patient whom he had just left. He told me he had used the long forceps, but had not succeeded in delivery. I took with me the short forceps, perforator and crotchet. The short forceps I applied with great readiness; but with all the strength I could command, I could not bring the head nearer. We sent for another medical friend, and with him a stronger pair of long forceps, as my friend who had charge of the case was very unwilling to deliver by any other means. Our

mutual friend tried his stronger pair of long forceps, but with no better success, so that we were shut up to the use of the crotchet. The patient, though greatly exhausted, made a good recovery.

The next three cases occurred in my own practice. In the present case, the patient told me that in all her former labours she had been delivered with the forceps. She had been ill for a good many hours before I was sent for. On examination I found the head presenting, pretty high up, but with the os uteri fully dilated. After waiting for a considerable time and finding that no progress was made, I applied the short forceps, but soon discovered that any force I could employ was of no apparent advantage. In these circumstances I sent for a friend to assist me, and share in the responsibility of the management of the case. He applied the long forceps, but could not bring the head any nearer. I then applied the perforator, when a gush of water took place, showing that the head was hydrocephalic. Delivery was speedily effected with the crotchet, and the mother made a rapid recovery.

The next two cases I shall transcribe from my note-book as they were written down at the time. On the evening of the 29th October I was sent for to visit Mrs. Y. I found that the membranes had been ruptured, and that the liquor amnii had escaped. The pains were few and trifling in their nature. I remained with her all night; but no appearance of effective pains setting in, I left with instructions to send whenever she should become worse. On the evening of the 31st I was again sent for, and arrived at her house at half past six o'clock. I found on examination the head presenting somewhat high up, with the os uteri fully dilated. The pains were grinding and severe, the patient restless and uneasy, often desirous of getting up; and it soon became evident that the labour would be tedious, inasmuch as little progress was being made. For four hours this state of matters continued, without any prospect of a termination to her sufferings. A messenger was now despatched for the forceps; but having four miles to ride each way, an hour and a quarter elapsed before he arrived. For some time previously the respiration had been getting quicker, and the pulse had risen to 120. Before the arrival of the forceps she was in such a state of distress from heat and the continuation of the same grinding pains, that she persisted in getting out of bed and divesting herself of almost every article of clothing. Having made arrangements for proceeding with the application of the forceps, I endeavoured to ascertain the exact position of the ear; but in this I entirely failed. I then attempted to pass the first blade in the ordinary direction, but from the jamming of the head in the bones of the pelvis I found this to be impossible, without using a greater degree of force than I was willing to employ. I changed the direction of the point of the blade towards the sacro-iliac junction, and in this position it passed onwards, but apparently farther inwards than is usual. The next blade was passed with considerable difficulty in the opposite direction; but before the handles could be locked, the first blade had to be withdrawn for a little. On making gentle traction they almost immediately slipped. The blades were reapplied in a different direction, but with no better success than at first. These trials were continued to be repeated for about three quarters of an hour, the instruments slipping almost as soon as they began to be used. It had now become painfully evident that the patient could not be delivered with the forceps. I therefore determined to send for the perforator and crotchet and another practitioner to assist. The patient by this time had become somewhat exhausted, and her pulse quick and feeble. Soon afterwards I thought I observed her belching up a mouthful of something like coffee-ground matter. The patient continued to get rapidly worse, and was evidently now in a sinking state. Heat was applied to the extremities but cordials of every kind she steadfastly refused. From this period she continued to get weaker and weaker, and died about 2 a. m. of the 1st November, that is, about two and a half hours after I had laid the forceps aside, and a few minutes before the arrival of the other practitioner. No post-mortem examination was permitted.

The next case in many respects was exceedingly like the one just detailed,

though fortunately attended with a happier termination. Mrs. L. had been complaining for some time before I saw her. When first visited, the os uteri was fully dilated; but the head had become impacted, and no progress was afterwards made for several hours. The forceps were proposed and immediately procured. Not being able to reach the ear, I pushed the first blade onwards in the usual direction; but in consequence of the jamming of the head it immediately slipped either upwards or downwards, while the other blade was introduced in a corresponding direction, so as to permit of their being locked. On traction being made, they lost their hold and had to be withdrawn. Trial after trial was made for upwards of an hour, uniformly with the same result, while very little progress was made in disengaging the head from its position. During the whole of this time the pulse remained steadily at 84. Tired and disappointed, I went and procured the assistance of a medical friend. With long and short forceps he made repeated attempts to bring down the head, but with the same unfortunate result; for none of the instruments would retain their grasp, but slipped as soon as they had begun to be used. In these circumstances we agreed to leave the patient for two or three hours to the unassisted efforts of nature. At the termination of this period I returned, and found that the pains were strong and bearing down, but that little or no progress had been made. I tried the short forceps again, and again they slipped; at length by repeated efforts I succeeded in bringing down the head. The child, one of the largest I had ever seen, at first showed little signs of life, but was at last restored to vigour and activity. The ear towards which the first blade was usually attempted to be passed, was considerably injured, but in other respects it was comparatively little. The mother passed a good night, and made a good recovery. Twice before she had been delivered with forceps, and on this occasion she was eighteen hours in severe labour. This case very much resembled the last; they were unique in my experience. In both cases the pelvis were probably under the average dimensions, and when the children were unusually large the difficulties occurred. The fatal termination in the case of Mrs. Y. was occasioned in all likelihood by a more delicate constitution.

I have thought often and anxiously about the nature of the cause which prevented the forceps in these two cases from taking a secure grasp of the head, and the only conclusion at which I can arrive, is, that the blades of the forceps were too short fairly to embrace heads of more than the usual size. On this account I have been led to measure the length of the blade in a considerable number of instruments in the hands of the maker, and I find a very general agreement as to size, that is, that the length of the blade measures from $5\frac{1}{2}$ to $5\frac{1}{4}$ inches. Now it appears to me that in the two cases just narrated, I failed in consequence of the shortness of the blade of the forceps employed; and that if I had had a pair measuring at least 6 inches, a secure grasp of the head might have been obtained, and the labour terminated in a manner much more agreeable and satisfactory to all parties. It does not appear to be quite consistent with the ordinary demands of science, that one size of blade should be expected to suit all sizes of heads. In no department of mechanics would such a law be found to hold good. If I might venture on giving an opinion on this interesting and important subject, it would be this—that in order to be provided for all contingencies, every practitioner should be furnished with two or three pairs of forceps with blades varying from 5 to 6 inches in length, so that when any difficulty occurred he might be able to select those most likely to be required by the exigencies of the case.

A perusal of the history of these cases will satisfy any one, that at least my experience of the use of the long forceps has been anything but satisfactory. In not a single instance in which I have seen them applied, did they succeed; and in every one of the cases where they were applied and failed, I could quite as readily and as effectively have used the short forceps: of course I only speak of what I have personally seen and experienced.

But briefly to recapitulate: I have used the short forceps one hundred and thirty times with comparative ease and facility, and with almost universal

success. In four cases I failed with the short forceps, but in none of these was the success any greater with the long ones. In every case where I have seen the long forceps employed, I was able quite as readily and effectually to apply the short ones. If such then is the brief and eventful history of the long forceps in the long catalogue of six thousand cases, I am forced to the conclusion, that in so far at least as my personal experience is concerned, they have been entirely superfluous and unnecessary, and may without injury to the cause of practical obstetrics be obliterated from the list of obstetrical instruments.—*Glasgow Medical Journal*, April, 1864, p. 27.

83.—TWO CASES OF INVERSIO UTERI, WITH REMARKS.

Read before the Glasgow Southern Medical Society, by Dr. A. L. KELLY.

[We consider the two following cases interesting. Care should render such cases very uncommon, but many trivial circumstances may unite in causing them.]

On the 21st April, 1852, I was requested to visit Mrs. M'F., aged nineteen, who was reported to be in labour of her first child. I found her tall, well formed, and apparently healthy—though much fatigued, owing to considerable suffering during the previous night. On examination per vaginam the os uteri was found well dilated, its edges thin, the vagina rather hot, presentation natural; the uterine contractions also recurred very regularly, but not with such power nor of such duration as might have been expected. Hence the labour, though steadily progressive, was slow and lingering. At length, on the morning of the 22nd, it became so feeble and ineffectual as to render instrumental aid necessary for the patient's safety. After emptying the bladder, warming and oiling the forceps, I easily and quickly applied them, as the head was low, almost upon the perineum; there being, however, no pains, steady and slow tractive efforts were employed to extract the head, which was no sooner accomplished, than a large gush of blood was poured upon the bed. I then quickly asked the attendant at the bedside to lay her hand upon the belly, and without a moment's hesitation she somewhat rashly and roughly pressed both hands *into*, rather than on the belly (it may be observed that in her right hand she held a towel, so that her fist was closed). This firm pressure seemed to arrest the flooding, and to have the effect of producing pain, as the body of the child (living) was expelled with very slight manual help; but again hemorrhage ensued, with sighing, restlessness, pulse extremely weak, and that exsanguine aspect, as well as general coldness of the whole surface of the body, which indicates imminent peril. Having given her a quantity of whisky, and made her head level with her body, I passed my finger towards the vulva, which immediately touched what I supposed and even considered the placenta; but after tying the cord, and separating the child from the mother, I laid my hand upon the belly, but finding no hard or rounded uterus, the thought of what might be at once flashed across my mind. Accordingly, to my extreme regret, I found lying upon the bed this soft mass formerly felt; and beneath, the firm, hard, oval, unmistakable, entire inverted uterus protruding quite externally. At this point, observing the dangerous condition of the patient both from the shock of such an accident and from the exhausting loss of blood, I requested the assistance of my friend Dr. Tindal, who I was aware had had a similar case, and his attendance, I am happy to say, was prompt. Our first thought was that it would be best, and we even endeavoured, before returning the displaced organ, to remove the placenta. To distinguish, however, placenta and walls of uterus, either by appearance or feel, and to separate the former with impunity to the latter, so firmly adherent whilst covered with blood, was a more difficult and hazardous task than one may feel disposed to credit, and than we were willing to risk. With right hand doubled up, therefore, I pressed steadily and firmly against the fundus, or most dependent part of the whole mass, which very soon began to yield, and glided upwards, followed by the

hand, until complete reduction and normal restoration was effected. The placental mass was now speedily and easily peeled off, in doing which the internal irritation re-excited the contractile powers of the uterus, and the retained placenta was expelled, with which the hand was withdrawn. Thereupon more whisky was given, which soon rallied her from the shock and loss of blood. She was further directed to have small and frequent doses of it, with forty drops of laudanum immediately—to be repeated in two or three hours after if pain was complained of. The abdomen was firmly bandaged, strict quietude enjoined, and careful avoidance of everything likely to produce a recurrence of the accident was insisted upon. Three hours afterwards when I called she was calm and composed, said she did not feel much pain; and here it may be remarked that to my surprise she never throughout complained of much pain, except at the moment when the attendant's hands were placed over the belly, and which I suppose to have arisen from the displacement of the organ. Subsequent visits I need not particularize, as no untoward circumstance occurred; and in a few days she was out of danger, and her health well and much sooner established than the fondest expectations could have warranted.

The second case occurred on the 9th February, 1863, when I was hastily called to see Mrs. G., a healthy, stout, well-proportioned woman. She was, I found, attended by a self-taught midwife, who stated that the presentation and birth, of the child were natural, about two hours previous to my arrival, but that the after-birth was slow in making its appearance, although she had rubbed the belly, produced coughing and sneezing by a pretty free administration of snuff, and who also reluctantly confessed to having pulled the cord, as she had felt it yield; and added, while turning off the blankets, "There it is, but it'll neither come off, nor go where it came from." In this case hemorrhage, although considerable, had not been so great, nor the shock so severe or prostrating, as in the former case. The patient spoke quietly but firmly whenever I entered the room (I learned afterwards, wine and whisky had been poured into her *ad libitum* whenever she seemed faintish). At the same time her pulse was small and feeble, face pale, chilly, and damp; besides she complained much of pain in her belly, and felt "just going to die"—such were her own words. I hastily pushed the nurse aside, and grasped the mass with the cord still attached, which felt much smaller and softer than in the previous case. Again careful and steady pressure in the same manner and direction as afore-mentioned, gradually but slowly effected restitution; with a sudden and distinct bound the fundus resumed its normal condition, when with ordinary care the placenta was now entirely removed, and expelled with the hand. Slight hemorrhage ensued, but was arrested by friction and pressure over the uterus, and subsequently by the application of a firm bandage. She then complained of nausea and pain, which was quieted by frequent doses of dessert-spoonfuls of whisky and soda-water, followed soon after by the administration of fifteen drops of laudanum every hour until she had taken four doses, when she became drowsy and slept two hours. On awaking she pronounced herself better. The following night, however, vomiting and severe pain in the abdomen set in, with hot skin, quick, feeble pulse, dry tongue, and slight cerebral excitement. On examining the breasts, milk was found present, and during the abstraction of a small quantity, uterine irritation was excited, which expelled several clots of blood; her urine was drawn off by the catheter, cold applied to the head, a cataplasm of mustard and linseed meal over the whole abdomen, and a teaspoonful of a mixture containing magnesia, laudanum, hydrocyanic acid, syrup, and water, was given every hour for some time. Relief and improvement were the results, and subsequently her progress was tardy, yet very satisfactory.

Such then is a brief and incomplete sketch, very slightly extended by the aid of memory, from jottings taken during my attendance and for my own use. It is however, as far as it goes, a faithful record of the only cases I have ever seen, or have any desire to see, of a like kind; and I have sought to place it on record, because, though rare, such instances do arise, are accompanied by alarming symptoms, yet are not invariably followed by the

plensing results which I have related. Both were those of complete inversion, which occurring after delivery may arise from many causes; but it is said to be almost always traceable to violent removal of the placenta. In the former of the two above narrated, I consider that there were predisposing causes in the large pelvis, the adhesion of the placenta to the fundus uteri, and the flaccid condition of the uterine walls, whilst the immediate and exciting cause was the quick thrust, or rather plunge, of the attendant's half-closed fist into the patient's belly. Probably this only developed or produced mere depression of the fundus, yet sufficiently so as to induce uterine contraction of one part, whilst there was entire atony of another. Moreover, by continuing the pressure the force of the pain was so increased, that, in addition to nearly expelling the child, it carried downwards externally the fundus and body of the uterus, with its whole contents. Indeed, the comparative ease with which the whole mass was expelled confirms me in the opinion that the fundus was depressed before, and ultimately quite inverted as the child was expelled. In the latter case the only discoverable cause, as in fact the confession made somewhat tardily indicates without a shadow of room for doubt, was violent traction of the cord. So much then as to the causes. We must call attention to the mode of operation, and it will have been observed that in both cases restitution was effected with the placenta in the former adherent, in the second partially so. Now, while the most expert and easy method of performing any operation well merits grave consideration, it will be granted that the safety and the future good health of the patient are the primary and essential points. That being the case, the question comes to be here—Is it not necessary, or advisable, to replace the organ immediately, since the longer the delay, the more serious and less practicable does the operation become? But perhaps it may be asked, why we should not, in order to hasten or facilitate reduction, at once remove the placenta? And to this my reply is—First, that had it been partially detached, it might have been expedient or easier to do so, but that, being adherent, the treatment above adopted was right, because the internal surface of the uterus would have been exposed to atmospheric influence, predisposing its taking on inflammation with its consequences. Second, hemorrhage must have been greater, as the mouths of the vessels would have been laid open; or if contraction had taken place so as to arrest the bleeding, then the difficulty in accomplishing restoration would have been much greater. Third, the force necessary for reduction exerted against the bare uterine parietes, must have bruised, and might even have ruptured them. And lastly, the time occupied in peeling off the placenta, would have been time gained for greater and firmer contraction. For these reasons, accordingly, as well as because of the success which attended the procedure here advocated, I propose, if I ever again have the misfortune to meet a similar case, to follow the same plan.

Let me add further, that in both cases great depression, sinking as "if going to die," was the most prominent and sudden symptom, dependent, I have no doubt, upon the severe shock communicated to the nervous system, and which was overcome by small quantities of whisky very frequently administered. Small quantities of stimulants, therefore, as well as small doses of medicine, I would strenuously advise, since they are well borne by the stomach, and less likely to induce nausea. The laudanum given in like manner, is perhaps advisable to mitigate the effects of the shock, relieve pain, and even prevent the probability of any recurrence of the same accident; for this must be well watched a considerable time, seeing that there is said to be a marked tendency to inversion for some time afterwards. I do, however, incline to the belief, that if restitution is quite complete before the hand is expelled or withdrawn from the uterus, and the usual subsequent precautions taken, such a circumstance would not very readily occur.—*Glasgow Medical Journal*, Jan. 1864, p. 426.

84.—CHRONIC INVERSION OF THE UTERUS.

Case under the care of — SHEPPARD, Esq., Surgeon to the Worcester Hospital.

[The patient was aged twenty-five, and was delivered of an illegitimate child in May, 1859.]

The labour was lingering, and the removal of the placenta by the midwife was followed by severe hemorrhage. On the fifth day, while in the act of passing water, she complained of "something coming down," and the mother states that the womb made its appearance externally, and was pushed back by the midwife. The pain was severe, and the prostration so alarming, that a medical man was sent for, who attended after some hours had elapsed, but no examination was made. From this date she became a patient at the infirmary (in December, 1862), she suffered almost constantly from menorrhagia, and lost great quantities of blood. When I first saw her she was perfectly blanched, and in the weakest possible condition. Feeling satisfied that there was some specific cause for this hemorrhage, I at once made the usual examination, and found a small body about the size of the virgin uterus occupying the vagina. The finger could be passed completely round the broad neck of the tumour, which was closely encircled by the os uteri. Seen through the speculum, it had a soft vascular appearance, and when touched it was extremely sensitive and inclined to bleed. The uterine sound could not be made to pass more than a quarter of an inch within the cervix. The finger in the rectum detected the absence of the body of the uterus from its natural position in the pelvis, but could recognise a small movable tumour in the vagina. The patient was confined to her bed up to January 13 of the present year; but notwithstanding the use of astringents internally and locally, hemorrhage still continued at brief intervals, and rendered operative interference necessary. Perhaps her countenance was a little less blanched than when I first saw her, but there was no difference in the size, vascularity, or sensitiveness of the tumour.

My colleagues having carefully examined the case with me, we came to the conclusion that the tumour was an inverted uterus, and that as no prospect existed of the patient recovering her health while it remained in the present state, its reduction or removal was imperative. The small size and firmly-contracted state of the organ, as also the length of time it had been inverted, rendered its reduction an impossibility. I therefore proceeded, under chloroform, to encircle it by means of the écraseur with an annealed wire; this was easily accomplished, but the wire giving away, I brought down the tumour with a pair of forceps, applied a whip-chord ligature, and separated it with curved scissors. The patient had no bad symptoms after the operation, but, owing to her weak condition from continual loss of blood, convalescence was very slow. The ligature came away at the end of a fortnight, but my patient remained in the Infirmary for another month.

When I last saw her, about a fortnight ago, she appeared in tolerable health and capable of doing light work.

The uterus is preserved in the museum of the Hospital; it is about the size of a small walnut. A part of the lateral ligaments and Fallopian tubes are well shown.—*Medical Times and Gazette*, Dec. 19, 1863, p. 643.

85.—ON RECTIFICATION OF OCCIPITO-POSTERIOR POSITIONS OF THE FÆTAL HEAD.

By Dr. WILLIAM LEISHMAN, Physician to the Glasgow Royal Infirmary and to the University Lying-in Hospital.

[Can an occipito-posterior position be rectified by artificial means? If so, at what period, and in what manner, can the rectification be effected? In what circumstances are we justified in interfering with the course of nature in order to effect the change? There is no doubt whatever that under cer-

tain circumstances the position of the head may be rectified, as many of the most eminent accoucheurs can testify.]

As regards the period of labor at which the rectification may be effected, we find much difference of opinion among accoucheurs. By many writers the question is put in such a way that we are entitled to infer from their statement that the change may be effected with equal ease, or rather with equal difficulty, at any stage of labour. If this is the view which is intended to be conveyed by those who so express themselves, it is certainly erroneous; and of this we may easily convince ourselves by attempting the rectification of the ordinary third position (the *bregmato cotyloid* of Dr. West) in a few cases, when we shall find that the head cannot in ordinary circumstances be turned back until it has reached that stage of the labour when nature of herself induces the rotation. In such cases, I have never been conscious of aiding the rotation one whit, although I have actually felt the head turn while I was manipulating. A professional friend lately told me of a case of occipito-posterior position in which he repeatedly attempted, by means of the forceps, to bring about the turn, but without avail. Having paused for a few minutes, but without withdrawing the blades of the instrument, his attention was attracted by a rattling noise made by the forceps, the blades at the same time slipping away from their hold of the head, and, on examination, he found that nature had done with ease what he had been in vain attempting to do, and that the head had completed its movement of rotation during a single pain. Such facts as these show that rotation cannot be effected in all stages of labour, but that it is only under certain circumstances that we can interfere with a reasonable prospect of success. My impression is, that rotation can only be effected by artificial means when the head is free above the brim, or when it has quite descended to the floor of the pelvis. In the former case we should be most likely to succeed with long, straight forceps, the handle being pressed back against the perineum, and gently turned until the head was brought into the desired position. The practical advantage of operation in such a case would be to place the head in the most suitable direction, if nature did not do so of her own accord—as in the case, to take an extreme example, of an obliquely-distended pelvis, in which the long diameter of the head was in the least favorable position. It must be rarely, however, that circumstances call for operative interference at this stage of labour: and it must be remembered that we are now talking merely of the circumstances in which the operation is feasible, and not of cases in which it is advisable. Whatever the circumstances may be in which we attempt to rectify the position of the head, there can be no doubt of the fact that a most important influence is exercised by the state of the uterus as regards the waters. If these have completely escaped, and the uterus tightly surrounds the body of the child, the rotation of the body is interfered with, and consequently that of the head is rendered much more difficult.

The circumstances, probably, in which we are warranted in interfering, with a better prospect of success, are to be found in that stage of labour where the head, in the third or fourth position, has descended to the floor of the pelvis. Under ordinary circumstances, rotation will spontaneously occur; but in those cases in which the occiput is simply arrested, and the forehead comes lower and lower until we can distinctly feel the orbit and nose, we have every reason to fear that rotation will not take place. I gather from Dr. West's paper that he considers the *fronto-cotyloid* as an original position—a position, that is to say, in which the frontal end of the long diameter precedes the occipital during the whole course of labour. He admits, however, that the ordinary *bregmato-cotyloid* variety may become changed during labour into the *fronto-cotyloid* in the manner described by most modern accoucheurs. If this be so, the position may be vicious from the beginning, or it may become so by a perversion of the expulsive forces during the course of labour. If we admit the occurrence of the former class of cases, I think they must be held as of rare occurrence while the latter form the general rule.

It will be remembered that, during the descent of the head in this position,

the expulsive force is directed against the occiput, the spinal column being articulated much nearer it than the frontal end of the head. So long, therefore, as the former meets with no resistance, it passes downwards in the axis of the brim; but, when it experiences the opposing force at or near the floor of the pelvis, one of two things may happen: it may either move in the direction of the resultant of the combined forces—i. e., from above downwards, and from before forwards; or it may, from some peculiarity in the form or relations of the parts, simply become arrested by the first impediment it meets with, while the force becomes misdirected against the forehead in the following stage of labour. Perhaps the simplest view which we can take of this is to consider the long diameter of the head as a lever. In the ordinary progress of such a case as we are considering, the fulcrum is at the frontal end, and the power near the occipital end of this diameter. So long as the resistance which is opposed to the descent of the frontal end, and which constitutes the fulcrum, is sufficient for this purpose, the descent of the occipital end continues, and the rotation is merely a more complicated phase of this mechanism. But if the occiput be arrested in its descent, the fulcrum is transferred to the occipital, and the power to the frontal end, respectively, the result being the gradual descent of the forehead, and the more than probable termination of the labour in this position.

Various methods have been suggested by means of which the artificial rectification of the head may be effected, these methods being either manual or instrumental, or both of these combined. It is perfectly clear that, if the forehead has come down, no mere rotation can bring about the change which we desire to effect. Rotation must in all cases be so managed that it is combined with a descent of the occiput, and a corresponding retreat of the forehead. Indeed, as regards artificial rectification, it would probably be more correct to say that the latter was the movement of primary importance, while the rotation was really a matter of secondary consideration. That most writers have taken this view of the case, is evident from the fact that we are almost always directed to manipulate so as to cause the forehead to pass upwards.

[Instrumental aid not unfrequently becomes necessary in these cases, yet the forceps alone are as a rule unsuitable, as they can only act by dragging the head downwards in the position it then occupies.]

The method which is most correct in theory, and also—to judge by the cases cited by Dr. West—most successful in practice, is that recommended and practised by him. The operation consists in a combination of manual and instrumental forces, by the action of which the forehead moves upwards and backwards, and rotation occurs. The instrument employed is the vectis, which, with the aid of the finger, can fulfil all the conditions necessary for rotation in a much more satisfactory manner than the fingers alone or the forceps can do. This mode of procedure is, however, only to be adopted when we fail with the hand. The importance of this subject demands a more detailed examination of Dr. West's views.

On the subject of artificial rectification, I shall let Dr. West speak for himself, as in the detail of these cases his theory and method of operating will be much more clearly shown, while their importance in a practical point of view will be more distinctly recognized. The cases as detailed are notes made at the time in his midwifery register.

"Case 1.—*Face to Pubes.—Third Position of Cranium.—Artificial Rectification.*—Dec. 28, 1853.—Could feel nothing but anterior fontanelle, which was nearly closed, and turned towards left side, and the sutures were scarcely perceptible. The anterior fontanelle feeling like the posterior came down, and presently I felt the nose at the symphysis. Thinking the pains did not press the head down while in this position, I turned the face to the left side again; and then, when I could feel an ear at the pubes, I pressed behind it till the occiput came to the arch. Labour over with two more pains. *Observe*—In rectifying the position of the head, after the nose has been felt at the symphysis, it is not sufficient to merely bring the ear to the symphysis, as the frontal end of the head will still be lowest, and the head will merely be

brought back to the vicious position which had resulted in the turn of the face to the pubes, and if so left, will again get wrong, or perhaps get impacted, the head being with its whole length in the transverse diameter of the outlet. It is necessary to bring the ear to the side; and at the same time it is expedient to raise up the anterior fontanelle, that the *vertex* may descend; for it must be borne in mind that *that* is the material point to be effected.

"Case 2.—*Face to Pubes—Fourth Position of Cranium—Artificial Rectification.*—January 27, 1854.—On first examining, I found the head in the fourth position, a considerable portion of the frontal bones down, the anterior fontanelle towards the right side, and the posterior fontanelle out of reach altogether, the right coronal suture pointing to symphysis pubis. After the next pain, I found the *frontal* suture at the symphysis, the anterior fontanelle being central, or nearly so, and the right coronal suture far away to the left side of the symphysis. Turned the anterior fontanelle backwards, and waited for another pain. The forehead came forwards again. Turned it backwards again, at the same time raising it up until I felt the posterior fontanelle, the right *lambdoidal* suture pointing to the symphysis. With two more pains the labour was over, with the occiput under the arch.

"Case 3.—*Right Ear at Pubes—Artificial Rectification.*—February 12, 1855.—Felt anterior fontanelle near coccyx, and right ear at pubes. Felt part of the cheek on right side of symphysis. Head had escaped from os uteri. Pains had been very strong for some time, with the liquor amnii evacuated. Thinking that because the forehead had got down into the pelvis the occiput would not be able to find its way to the arch, and that the forehead would turn there instead, I pressed the ear to the right side, and the occiput coming down, passed under the arch. The labour was completed immediately after. As the revolution of the head was in the interior fontanelle, that part was felt in exactly the same position, with reference to the coccyx, after the rectification as before.

"Case 4.—February 13, 1823.—Feeling anterior fontanelle low down, and slightly to the left of the coccyx, I felt round the right side for the posterior fontanelle, but could not find it. I then passed the finger to the symphysis, thinking to find the ear, when it struck on the left eye (close to the symphysis, but slightly to the right of it), and on the root of the nose (close to the left side of it). The os uteri was fully dilated, the head on perineum, and the woman had been only two or three hours in labour. I therefore did not attempt rectification, and in three or four pains the child was born, the frontal suture having passed rather nearer the central line of the pelvis."

The first three of the above are cases in which rectification was effected without much difficulty, by manual interference alone. The details are eminently interesting and instructive. Whether the cases are managed according to the method of West and most others, by pushing the forehead up, or in accordance with the directions given by Meigs, by pulling the occiput down, the result is the same. The rotation, as I have said, is a secondary matter, as the great point which we must strive to attain is to put the head into such a position as to enable the occiput to descend, when the rotation will of necessity ensue. Should we fail in our attempt at rectification by this method, we may succeed by combining the leverage of the vectis with the action of the fingers, passing the blade upwards behind that ear which is turned towards the sacrum. Unless the head is unusually large, the forceps will act only by pulling the forehead still further down, and in all probability making the case worse than it was before.

I append another instructive case from Dr. West's register, as illustrating this point:—

"Case 5.—*Third position—Delivered by Vectis.*—September 27, 1854.—Head descending very unsatisfactorily, and not pressing on lips of os uteri. When it was well dilated and dilatable, I delivered with the vectis. The position was an ordinary presentation of the third kind, with the anterior fontanelle close to the left side of symphysis. I introduced the vectis by the left side of perineum, and passing it to the right side of the mother, it fixed readily on the mastoid process over the left ear. As I made traction,

the vectis (with the ear) turned to the pubes, and thence to the acetabulum, and presently the head was born. I could still feel the whole of the os uteri when I introduced the vectis. It was flabby and very dilatable, but the head would not descend into the pelvis so as to press on it and pass through it—a good example of bregmato-anterior variety as proved by movements of vectis, and mark of vectis under left ear. *N. B.*—I did not *guide* the head in its descent; I merely made traction, and as it was pulled down it turned of itself, carrying the vectis round with it."

The above remarks, I may repeat, do not apply to those cases in which the head of the child is unusually small or the pelvis of the mother very large, as such cannot be expected to be subjected to the usual laws of the mechanism of parturition. I would remark further, that the descent of the forehead is in all probability more likely to result from the arrest of the advance of the occiput in a large than in a small pelvis, or with a small in preference to a large head, and this for very obvious reasons. The above will, I think, suffice to show that instrumental interference with these cases may be the reverse of beneficial, unless the operator be well assured of the position of the head, and thoroughly understand the mechanism of the process by which nature effects delivery in the ordinary cases of occipito-posterior position.—*Glasgow Medical Journal*, Jan. 1864, p. 451.

86.—A CASE OF TWIN LABOUR IN WHICH UTERINE ACTION COMMENCED AND PROGRESSED TO THE SECOND STAGE DURING SLEEP.

By Dr. JAMES PALFREY, Senior Assistant Physician to the Metropolitan Free Hospital, and Physician to the Surrey Dispensary.

[The patient had borne twins two years and a half before her present confinement. On the present occasion delivery of twins had taken place an hour before Dr. Palfrey's arrival. The children were both alive and rather above the average size of twin children.]

Having attended to my patient, I inquired if she could in any way explain to me the cause of this rapid delivery, when she told me she had retired to bed in her usual health shortly after eleven o'clock the previous night. She soon fell asleep, and believes almost immediately began to dream, the substance of such dream being that she was then in labour, in great pain, and that after some time a fine child was crawling over the bed. She assured me that she continued thus to dream of being in severe labour for a considerable time. After sleeping for a period which could not have been less than four hours, she awoke, and at once discovered some discharge issuing from the vulva. Upon this she aroused her husband, who immediately proceeded to procure a light. To their intense astonishment, however, before the few moments had elapsed which were occupied in getting a light, Mrs. J. screamed with pain, and the first child was instantaneously expelled, the head presenting. A few minutes later labour pains returned, and upon my patient's husband going to her bedside, the feet of a second child were found protruding from the vulva: a third pain expelled the shoulders, and a fourth the head, the placenta following in about ten minutes. To these particulars I may add that this patient had not taken any stimulant or medicine on the previous night.

Now I think there can exist no doubt in our minds as to the fact that in the case just narrated uterine action did actually commence, and that labour did progress to the second stage, during the sleep of this patient. Further, I think we may with equal certainty conclude that during the prolonged dream so circumstantially described by this lady the os uteri had dilated, and the head of the child had passed through and descended to the perineum; and it was at this time that the patient awoke. That she did sleep without interruption for the length of time above stated there can be no question, for she assures me that she has no recollection whatever of waking from the time she went to sleep until a few minutes before the birth of the first child.

I will not stop to offer any remarks upon the many interesting points which will readily occur to every reader on perusing the details of this case. I may, however, in conclusion, add that although I have made diligent search in many of the works on obstetrics and medical jurisprudence, and have also carefully reviewed the notes of many hundreds of cases recorded by my late father-in-law, Dr. Lever, I have been unable to find a case similar to the one I have narrated. I think we may fairly conclude that this case sets at rest a point upon which many of us have hitherto been in doubt—viz., whether or no efficient action of the impregnated uterus can take place during natural sleep.—*Lancet*, Jan. 9, 1864, p. 36.

87.—RARE CASE OF PRETERNATURAL LABOUR.

By Dr. HENRY MUNRO, F. L. S., Lecturer on Medical Jurisprudence at the Hull School of Medicine.

[The presentation occurring in the following case must be one extremely rare.]

Elizabeth Richardson, a thin spare woman, poorly fed, and living in a single room in the locality of Witham, was taken in labour of her third child about 5 a. m. on Saturday, February 21st, 1863.

She was attended by a neighbour, who, on this occasion, undertook the office of midwife. The membranes were ruptured, and the liquor amnii escaped about 6 a. m. The labour pains after this somewhat ceased. She had slight pains during the whole day of the 21st; but the child made very little progress. Towards evening, the pains gradually increased; but as night advanced, they began again to decline. The midwife, on Sunday morning, the next day, the 22nd, finding the pains increase, but the progress of the child not at all advanced, or not at all understanding the presentation, sent for Mr. Anningson, surgeon, about 1 p. m. When Mr. Anningson arrived, he found, on examination, that five parts of the child were presenting themselves; viz., one leg was very well down in the vagina, also both arms, the funis, and the crown of the head.

He attempted to turn the child by bringing down the leg, but found that he only wedged the child up the tighter, and that all his efforts to deliver in this way were futile. About 2 p. m. he sent for me to assist him. I immediately attended. There could be no difficulty in making out the presentation and the position of the child. I found it quite impossible to return the arms, and bring the head into a natural position, on account of the close contact of the uterus over the child.

I at once placed a broad ligature round the child's leg, and gave it to Mr. Anningson. Then pushing up the head and shoulders, and necessarily the arms, I requested Mr. Anningson to make a strong traction with the broad ligature. The pains were then not very forcible, for the woman was growing much exhausted. By alternating our movements of pushing up the head and chest and pulling down the leg, our efforts were in about a quarter of an hour rewarded with success, by getting the breech into the pelvis low down. The other leg was somewhat in the way; but, by a little manipulation in passing the finger over the thigh, it was also got down. The case now being made a footling case, the child was easily brought into the world alive.

The pressure on the band and arm of the operator was very great; but the woman recovered without any bad symptom.

How the cord had escaped pressure, I can scarcely tell; but so it was. The child was born alive, and is now in a healthy condition.—*British Medical Journal*, Jan. 2, 1864, p. 7.

88.—ON A PLAN OF TREATING PROLAPSE OF THE FUNIS.

By Dr. J. LUMLEY EARLE, Obstetric Surgeon to the Queen's Hospital, Birmingham.

Of all the plans recommended for the treatment of prolapsus funis, it is said that of turning has saved the greatest number of children, and I shall therefore presently compare together the respective merits of turning, and Sir Richard Croft's method, to show how far more likely is his plan to lessen the number of still births in such cases than is the operation of turning; but, before doing so, it would not be right to leave unmentioned the objections attached to other modes of treating prolapsus funis.

To such methods as pushing the cord above the brim with the fingers, or with instruments, or lodging the cord in the hollow of the neck of the child, there is the objection that the cord, which, when prolapsed, is generally unusually long, is very liable to slip down again at the next uterine contraction. To mechanical means for pushing the cord above the brim, besides the objection already mentioned, there are two others; one is that a medical man cannot be expected to carry about to every labour an instrument intended to remedy an accident which only occurs about once in 221 cases. The whale-bone instrument recommended by Dr. Ramsbotham, can certainly be made on the spot; but then it has the other objection attached to it, which is, that in order to place a fold of the cord in the loop of the tape, the cord has to be pulled down outside the vulva; this proceeding alone would place the life of the child in a certain amount of jeopardy, and further, by pulling down more of the cord, there would be less chance of its remaining up after being replaced. The plan suggested of placing the cord in a part of the pelvis where it would be the least subject to pressure is all very well in theory, but I should be very sorry to trust to it in practice. It might in some cases succeed where the pelvis was unusually capacious, and the birth premature. The forceps would only be required in those cases where the head was low down in the pelvis, or, at all events, had entered the brim, and of necessity, if the prolapsus has not been remedied before the head has come down so low, the life of the child would be in the greatest danger, if not lost already.

The operation of turning for prolapsus of the cord (if we only consider it for a moment) is a most unscientific mode of treating that complication. In order to save the child's life, we undertake a treatment, which of itself is but a few degrees less dangerous to the infant. According to Dr. Churchill's statistical tables, the mortality in footling cases is 1 in 24. On the other hand, Sir R. Croft's method does not alter the natural head presentation, which is the only safe one to the child, but merely replaces the cord in its proper position. His method consists in passing the cord up to the fundus of the uterus enclosed in the hand, and hooking it over the highest portion of the foetus. In his treatment we do the first step towards turning, that is to say, we pass our hand up to the fundus, but instead of pulling the feet down, we merely hook or place the cord over the highest portion of the foetus, and then, when a uterine contraction comes on, gradually withdraw our hand. What mode of treating such cases can be more according to nature?

Dr. Churchill, in speaking of this plan, states that it is a very difficult and somewhat dangerous operation, and that he is inclined to agree with Dr. Burns, that "if the hand is to be introduced so far, it is better at once to turn the child." All I can say is, that in the three cases in which I employed this method, I found it a very simple operation, and as to its being better to go on and turn the child when the hand has been passed so far, I have stated the very important reason why it would not be better to resort to turning, as it is in itself a remedy of great danger to the child.

Of course, Sir R. Croft's method would not be practicable in every case more than any one of the other remedies recommended; but in any case in which we could turn we could also employ his plan of treatment. The great point in *prolapsus funis* is not to rupture the membranes, if possible, until

the os is nearly fully dilated, and not to leave the room after the prolapse is discovered, for in our absence the membranes might rupture, and the opportunity for applying proper treatment be entirely lost.

I here subjoin a table of seven cases of prolapsed cord which have come under my own observation, with the methods employed, and the result to the infants.

Methods of Treatment.	Number of cases.	Result to child.	
		Alive.	Dead.
Pushed the cord above the brim	2	1	1
Turned	2	1	1
Took the cord up to the fundus of the uterus, and hooked it over the highest portion of the fœtus .	3	3	—

In the last of the three cases treated by Croft's method I subsequently delivered the woman (a primipara) by the low forceps operation, as the head had been in the cavity of the pelvis for some hours, and, notwithstanding the double danger to which the child had been exposed from the prolapsus funis in the first, and the forceps in the second stage, it was born alive. I may mention, although it is hardly necessary to do so, that in all the cases the mothers did well.—*Medical Times and Gazette*, Dec. 19, 1863, p. 641.

89.—THE GALACTAGOGUE PROPERTIES OF FARADISATION.

By DR. THOMAS SKINNER, Obstetric Physician to the Dispensaries, and to the Female Orphan Asylum, Liverpool.

[The following cases of Dr. Skinner are very interesting. Faradisation has evidently been too little used by us.]

Case 1.—Early in August, 1861, I was consulted by a lady aged about thirty-six, on account of vaginal irritation and other morbid symptoms, evidently resulting from anæmia. The lady had been lately confined of her fifth child under the care of an experienced accoucheur, and she was at the time suckling her infant. She was ordered moderate doses of tincture of steel thrice daily, but this medication was followed, in a few days, by a complete stoppage of the milk in both breasts. The right breast had never been used for suckling since an attack of mammary abscess some years before, so that I was only required to re-establish the flow of milk in the left breast. At the time of the application, the patient told me that she felt a distinct sensation as of "a rush of milk to the breast." On the 16th, the patient reported, that, *although perfectly incredulous of any good result*, yet within a few hours of the Faradisation a copious supply of milk was permanently established in the left breast. I was then asked by the lady if I could do any good to the breast which had been so long useless as regards the function of lactation. I made the attempt, having little faith in the wished-for result, but I was agreeably disappointed to find that, after two brief sittings of little more than five minutes each, the right breast became as good a "milker" as its fellow. The anæmia was subsequently successfully treated by the *effervescent carbonate of iron*, and with the best effects on the mammary secretion and on the child, considering that effervescent drinks are so much dreaded by nurses and suckling mothers for their bad effects upon the infant. This patient was so much struck with the power of Faradisation in increasing the secretion of milk, the bright idea occurred to her, that "a galvanic machine would not be a bad investment for a dairyman!"

Case 2.—Mrs. —, aged twenty-one, was confined of her first child on April 28th, 1861. Her labour was in every respect natural, and she was seemingly both robust and healthy. Within a month of her delivery, the milk began to

decrease and the child became irritable, when artificial food had to be added to the breast-milk; the milk, however, continued *steadily* to lessen more and more, until it was all but entirely stopped in about a week. In this case I could divine no cause for the diminution of the secretion. Good wholesome food, gruel, malt, and the usual stimulants, with open air exercise were resorted to, but all in vain. On the 7th October, 1861, I galvanised both breasts, using the "secondary" current, when the patient complained of a similar "rush of milk" as occurred in the previous case. I told the patient to return next day to have the treatment repeated, but she sent me word that it was not required, as a copious supply of milk had set in shortly after leaving my house. Let me add, that the lady in question, previous to the Faradisation, looked upon the treatment as "a good joke," and was quite as incredulous as the previous patient of any good result.

Case 3.—A strong and healthy young woman, wet-nurse to a patient of my own, from a mental cause, suffered a sudden and all but total loss of breast-milk. One single application of galvanism restored the secretion within a few hours.

Cases 4, 5, and 6.—Were mothers where the supply of milk was always at a minimum, and never altogether sufficient for the child. One or two applications were followed by the desired result in all of them.

Case 7.—Mrs. H., married, and about twenty-three years of age, was confined of her first child six months ago. The breast-milk has been steadily disappearing, although her appetite, digestion, and general system, are perfectly unexceptionable. At present the quantity is so small that she cannot supply her infant with anything like a meal from both breasts, which is a source of great misery to her, as she says, that she "cannot bear to hear the cries of her half-starved babe."

On the 20th December, 1862, I applied the "combined" currents to each breast separately, as more particularly described hereafter. On arriving at home, a distance of about three miles, and not until she applied her child to the breast, did she feel what she termed "the draught." A plentiful meal of milk was drawn off by the child, which went to sleep immediately thereafter, circumstances to which both the lady and her child had been strangers for a month or more.

A good supply of milk remained that night and all next day, when the secretion again became as deficient as before the Faradisation, and the infant began to fall off. Circumstances prevented the lady from returning to me until the 29th December, when the Faradisation was repeated, only I lengthened the duration of the process (about ten minutes to each breast). The result was most satisfactory.

On the 28th January last she called to thank and to inform me that the supply of milk was again abundant on her return home, and I had ample proof in the appearance of the breasts and their secretion, as well as in the look of the child, that the increase in quantity continues permanent.

On the 16th February I received the same favourable report.

Case 8.—M. A., aged twenty-three, wet-nurse to a lady in the country, a patient of my own, was suddenly affected by a very great diminution in the supply of her breast-milk. The milk was about nine weeks old and the infant one week. The rapid disappearance of the secretion I believe to have been caused by the monthly nurse having told the wet nurse that she observed her milk "failing," and from the fear of losing an excellent situation, the milk disappeared altogether for a whole day.

On the 6th February, 1863, when the poor girl was actually trembling through fear of losing her place for want of breast-milk, I galvanised both breasts, by the direct and intramammary plan, by means of the "secondary" current. Like all the other seven, she felt the current most upon the upper surface of the breasts and towards the axilla, but most when the current was passed direct from the axilla to the nipple. The "rush of milk" occurred for the first time on her way home (within an hour), and it was much greater than she ever before felt. In spite of the strong emotion of fear that seemed almost to overpower her, the quantity of milk in her breasts that night was more

abundant than she ever had it, and it still continues so, without having further recourse to galvanism. In this nurse the right breast has always been less developed than the left, but both are now more than sufficient for the child.

These eight cases comprise the whole of my experience of Faradisation as a galactagogue.

Mode of application and the duration of the Faradisation.—To the uninitiated it may be well to state, that by Faradisation is meant the *localizing of the galvanic current*, in contradistinction to the all but defunct method of passing the current through different parts of the body or with the poles widely asunder. Localized galvanism is the discovery of the distinguished Duchenne, who, in honour of our illustrious countryman, Professor Faraday, called the new process "Faradisation."

The instrument which I have also used is the electro-galvanic coil machine, and I have no hesitation in saying that it is of all forms of apparatus the best for the purpose. The current obtained from chemical decomposition is the easiest regulated and applied, the most steady and constant in its action, the least painful and the most effectual. Although I have had no experience of any machine (as a galactagogue) but the one I am about to describe, nevertheless, from my general experience of most forms of electrical and galvanic apparatus, I am much inclined to believe that the magneto-electric, voltaic, and other machines for developing the galvanic current, will effect the purpose, not excepting Pulvermacher's portable and very convenient chain battery of 60 or 120 elements excited by vinegar.

The coil machine which I employ has three currents, namely, the primary, the secondary or induced, and a current composed of the primary and secondary, which I call the combined currents. The instrument is a very powerful one, the battery being composed of from three to six of Smee's cells, and yet it may be made to administer the galvanic stimulus to an infant. It was made to order by Messrs. Horn and Thornthwaite, of Newgate street, London, and it is impossible to speak too highly of it in every particular. From the above description it will be evident that the machine is the very reverse of portable.

The *modus operandi* which I have adopted in applying Faradisation in the above cases is as follows:

1. *Direct.*—Both poles must terminate in a cylinder into which is inserted a piece of sponge well moistened with tepid water. The positive pole is to be pressed deep into the axilla, whilst the negative is lightly applied to the nipple and the areola; the current should never be stronger than what is pleasant or agreeable to the patient's feelings. Sometimes the nipple is so sensitive that the current can hardly be made too mild. The poles are kept steadily in this position for about two or three minutes, not more.

2. *Intramammary.*—The two poles are then to be pressed into, or, as it were, imbedded in the mamma on each side of the nipple, and to be raised and reimbedded, observing that both poles are raised and reimbedded together. This is to be done all round the nipple and all over the breast, particularly on the upper surface, so as to stimulate, not only the gland, but also the descending superficial branches of the cervical plexus, the thoracic, and the cutaneous branches of the intercostals supplying the gland and its integument. This last part of the process may occupy from two to three minutes (not more), the first sitting. The same is to be done to the other breast, and repeated daily until the secretion is properly established. Hitherto I have never found these means fail to restore the secretion in healthy subjects, in from one to two sittings.

It is well to remember that the Faradisation is not to be applied without intermission until the milk appears in the breasts. The milk we know requires to be *manufactured* from the blood under the direction of a sufficient supply of nervous energy; some time must therefore be allowed to elapse before the result of the Faradisation can be determined. With regard to Case No. 1, I thought that I had failed to restore the secretion, until the next visit of my patient revealed to me the error in my conclusion.

I think it right to remark that I have not tried the effect of the *primary* current alone in any case, but only the secondary and combined currents, both of which seemed to me to be of equal value. I am inclined to believe, however, that the primary current machines will effect the purpose, though perhaps not so speedily or effectually as machines with a secondary or combined current, because, Duchenne has shown that the primary current chiefly stimulates the *motor*, while the secondary affects most powerfully the *sensory nerves*—both are likely, however, directly or reflexly, to stimulate the *gang-lionic*, the system regulating secretion.

Remarks.—It may be objected to these cases that the *post* may have been mistaken for the *propter hoc*, and that Faradisation had nothing to do with the results; but the fact that none of the patients believed in the agent, that a few of them laughed at it, that one of them was in *positive dread* of losing her situation through loss of her breast milk, that no other means beyond wholesome diet, exercise in the fresh air, and hygiene, were made use of at the same time with the Faradisation, and finally, the perfect success obtained in establishing a permanent and sufficient supply of breast milk in all of those cases, leaves little doubt in my own mind that the happy results were the direct effect of the Faradisation. Further, let me observe that in Case No. 1, the right breast, which had *lain dormant for years* (the lady having suckled an infant in the interval on the left breast only) was recalled into actual service by two sittings of about five minutes each. In No. 2, where no cause for the *steady* diminution of the milk was observable, and where all the usual means by local heat, friction, warm diluents, stimulants, and starchy food, &c., were tried in vain for a week, yet, immediately after a single sitting, not exceeding ten minutes for both breasts, the secretion was restored in full force as before. The same remarks apply more or less to No. 7. Had the Faradisation failed in Cases No. 2 and 7, a wet nurse was the only alternative.

It has been told me that milk secreted under the influence of the stimulus of the galvanic current is not, or cannot be, healthy milk. Now galvanism, unlike drugs, adds no foreign ingredient to the secretion, it takes nothing from it, nor can it alter it physically, chemically, or vitally, except as regards quantity.

As well might we talk of altering the lachrymal, salivary, or any other secretions from a healthy gland and system, which it will infallibly increase if carefully and properly applied. *Galvanism seems only to resuscitate the vis à tergo, nature supplies and does all the rest.* But any fear of Faradisation rendering the milk unhealthy or deleterious is entirely set aside by the cases I have narrated—"the proof of the pudding being the eating of it," it will be granted that the proof of the healthiness of the milk must lie in the digestion and assimilation of it; and so far as my experience goes, I found the milk secreted under the influence of galvanism to agree admirably with all the children, the same as if galvanism had never been had recourse to. A medical friend has objected to Faradisation as a galactagogue because he cannot see how a *permanent* supply of breast milk can be the result of one or two applications of galvanism. Now, on this point, the facts which I have stated must speak for themselves, and if my friend or those who are inclined to think like him, cannot or will not accept my statements as facts, then they had better make fresh observations for themselves.

Sources of Fallacy.—So far as sources of fallacy are concerned, I have no doubt there are many, and as there is one which I have already met with, I shall allude to it by narrating the following case:—A married woman, a wet nurse to a patient of my own, before she was a week in service wished to resign her situation, because she said she had very little or no milk for the child. My patient informed me of the state of matters, and I told her there was nothing for it but galvanism. The woman strongly objected, but at last gave her consent. I applied the galvanism *secundum artem*, but next day the nurse stoutly declared she had no milk, and that she could not "*honestly*" stay. In presence of the lady I examined the breasts, and I showed her that they were actually overflowing; and it is my firm conviction that the breasts had never been otherwise. The nurse was most probably suffering from non-

algia, and wanted to go home to her husband and child, whither she ultimately went, and I understand that she has since then suckled the latter the usual time. This source of fallacy cannot be too earnestly borne in mind.

In conclusion, I may state that I was not aware that Faradisation or galvanism had previously been used with success to establish, restore, or increase the secretion of milk. I now find that Dr. Althaus, in his admirable treatise on "Medical Electricity," refers to such cases as having been observed by MM. Aubert and Becquerel. (Althaus, 1859, p. 302.)

Considering the great and sometimes insuperable difficulties attending the management of such cases in practice, I think that we cannot too highly appreciate the value of any safe means likely to prove successful; and although the results of the practice in my hands may seem rather flattering, I feel confident that the same successful results will attend the well directed efforts of others.—*Obstetrical Transactions*, Vol. 5, 1864, p. 92.

90.—ON OVARIOTOMY.

By Dr. CHARLES CLAY, Manchester.

[This interesting paper of Dr. Clay's we cannot abbreviate without omitting some important opinions; we, therefore, give nearly the whole paper as it appears in the *Obstetrical Transactions*.]

It is, I believe, well known to many (if not all here present), that for the last twenty years I have been extensively associated with some of the largest operations connected with abdominal surgery, having since the year 1842 made the peritoneal section 116 times; of which 103 were for the extirpation of diseased ovaries; 4 where the ovarian tumour was cut down upon, knowing it to be too firmly and extensively adherent to be extirpated, but with the view of breaking up the tumour internally, and establishing an extensive ulceration by seton, all of which succeeded; once for the Caesarian operation, and three times for the entire removal of both uterus and ovaries. These operations have been attended by a success far beyond my most sanguine hopes. At first I ventured to expect that about one-third of those operated upon might be saved. The following results will show that I was not disappointed. Of the 103 cases of ovariectomy, 74 completely recovered; all of them living, and enjoying life and health, for many years afterwards; many of them having had children, both male and female, and in only two cases did the disease return in the opposite ovary. Of the last two, one died five years after the operation; the other was so remarkable, that a few particulars will not be out of place, after being operated upon by me, and an ovarian tumour of forty-eight pounds extirpated. On the second day, hemorrhage took place from the pedicle, and I was obliged to remove three of the outside sutures, then grasp the pedicle and apply another ligature, and replace the sutures. This hemorrhage arose from the thickness of pedicle preventing the first ligature from having its due pressure on the supplying vessels, and which had worked itself loose, before a sufficient obliteration of the vessels had taken place. The consequence of this re-application, was a very severe attack of peritoneal inflammation, which was subdued with great difficulty. The case then progressed favourably for some days, when she was secretly indulged (by her nurse) with some buttermilk, which gave rise to violent vomiting and purging, followed by a smart attack of inflammation of the mucous membrane; when this subsided great prostration took place, and for some time her life was held doubtful. From all these mishaps, however, she recovered, and some months afterwards she married and went to the United States, and there had three children. In 1861, sixteen years after the first operation, the opposite ovary became diseased, and increased to a very large size; she now prepared to return to England, to place herself under my care. In the mean time I wrote, and requested her to consult Mr. Atlee, the principal ovariectomist of America, which she did, and was operated upon for the

second time, and to my astonishment recovered. A short time ago, this patient was reported to me as quite restored to health, and capable of attending to the duties of her household. A case like this, in my opinion, speaks volumes in favour of the operation.

To return, however, to the question of the 108 cases (ovarian); 34 only, died; being somewhat short of 30 per cent. Of these 34, 10 died from the immediate consequences of the operation, or from what may be termed shock; 10 died from peritoneal inflammation, generally about the third day; 12 from prostration on or about the sixth or ninth day; and 2 from hemorrhage. The first ten, from shock, were chiefly young females, as well as a greater portion of those forming the second division, viz., those from inflammation. Of those forming the third division (prostration), the majority were elderly, about the period when menstruation was about to cease, or had ceased altogether; and generally about the sixth day. The minority of this section being of the younger class, did not usually die till about the ninth day. Of the two from hemorrhage, one died soon after the operation from the drainage of small vessels from a large cut surface, where extensive adhesions had existed. The other lived thirty hours after the operation, and then, during a frightful dream, she sprang up in bed, whereby the pedicle ligature was loosened and prematurely thrown off, and she sank from internal hemorrhage immediately afterwards.

I will now briefly dwell on a few points in the general management of these cases, which I deem to be of considerable importance, so far as my own experience has enabled me to verify. And first as regards the temperature of the room for operation. I have always steadily persevered in maintaining it to be of very considerable consequence in the successful management of these difficult cases, to have the temperature of the room raised to about 75° Fahr. at the time of the operation: considering that, should any long exposure of the viscera, or of abdominal cavity be unavoidable, the danger may be best met in this manner. I believe such cases so treated are less liable to end in shock. Indeed, I feel convinced, that my own operations owe a considerable portion of their success to this means, and I should be sorry to discontinue the practice. With regard to the

Use of Chloroform.—I am not certain if this agent has really added to the success of ovarian operations. The first fourteen of my cases were undertaken before it was discovered, and of those fourteen, nine recovered. But though I willingly admit the almost impossibility of obtaining the consent of females (at the present time) to submit to so formidable an operation without the aid of this valuable agent; and though I am equally convinced that chloroform is of itself one of the greatest boons to suffering humanity; yet, if it could be accomplished, I should infinitely prefer to operate without it, as the patient would bring to bear on her case a nerve and determination to meet so great a trial, which would assist beyond all value the after-treatment; it would also relieve the case from that most distressing retching and vomiting, so common after all abdominal operations where it is used to the extent that it is required in ovariectomy. And now as to the

Large Incision.—I have always been an advocate for, and practised extirpation by the large incision (that is, commensurate with the size of the tumour to be removed). I have been much censured, and greatly misrepresented, on this point, but after the most serious reflection, I still adhere to the plan, feeling, as I do, its many advantages, and believing it to be infinitely superior to any other proposed. My experience sets a much greater value on having a bold and large incision through the integuments, at once affording plenty of room for every manipulation, aided by the eye, than to require a subsequent enlargement, or to drag cysts, or solid masses, through small openings, without a knowledge of what attachments may possibly exist behind, unseen, unfelt by the finger, and the mischief that might arise in consequence of such proceedings. With respect to

Ligatures.—I have for the last twelve or fourteen years, almost invariably used the Indian hemp. In my early operations I used the strongest stay-maker's silk, which I discontinued from its aptness to slip. The Indian

hemp is well waxed, the finer thread for securing small vessels, and for the interrupted sutures of the integuments; the coarse thread double, sometimes three strands, I make use of for the pedicle, or for the cervix uteri when I have to excise the uterus. I have always found these ligatures answer every purpose well, and do not like to discard an old friend, even for silver, or iron wire, both of which I have tried in other cases, but have not as yet seen advantages enough to induce me to use them as a substitute for the Indian hemp, nor am I an advocate for the clamp.

The Distressing Gulping and Vomiting, in its aggravated form, immediately after the operation, I can scarcely help attributing (in a great measure) to the use of chloroform, since I saw but little of it in the first fourteen of my cases, where it was not used.

I must not, however, confound this with the sickness indicative of peritoneal inflammation. With regard to the first—I have never found, as yet, an efficient remedy; I have tried almost everything I could think of, or my professional friends could suggest, with little or no benefit; and, after all, perhaps a little patience (until the blood has got rid of its load of carbon), and the sipping very small quantities of gum water I have found as efficacious as anything else; taking care to adopt the general rule not to supply the stomach with much food of any kind until its sensitiveness is somewhat allayed, and then in the smallest possible quantities, and of the simplest kind. Again, I have noticed, with some degree of interest, certain periods in the progress of treatment, or

Critical Days.—A knowledge of these periodic changes, their causes, and probable consequences, has led me to watch for them, and be prepared for them whenever they should arise; by this means I have been enabled to meet many difficulties, and contend successfully with them, which, if not carefully provided for, might easily put the case beyond chance of recovery. If the patient does not sink immediately from shock (that is, within the first twenty-four hours after operation), the first critical day will be the third, and the cause of fatality, if the case so terminates, will be unsubdued inflammation. At this place I may remark that I never bleed, but entirely depend on hot fomentations, which are usually sufficient; I prefer this plan, simply because the fatality by prostration is quite enough, without adding to it by depletion in the earlier stages. The next critical period is the sixth day, when I first apprehend danger after the subsidence of peritoneal inflammation (in the elder class of females, particularly), from prostration; should, however, the case be young, this termination may be deferred to the ninth, or next critical day, which is the usual period of prostration for younger females. If the patient passes this point, it assumes a far more favourable prospect for recovery, and the critical days become of less consequence, nevertheless; I have seen the twelfth day usher in some very troublesome symptoms, consequent on the loosening or entirely throwing off the ligatures on the pedicle; and in one or two cases I have seen (about this period) a secondary attack of peritoneal inflammation, or inflammation of the mucous membrane, which, if not carefully and actively managed or foreseen and prevented, may wreck the patient. After this period I generally consider the case moderately safe, and have seldom been disappointed. I have also noticed that the right ovary is more subject to disease than the left; after diagnosing at least 1,600 cases of ovarian disease, my own experience presents as a fact, that one-third more of diseased ovaries are of the right side; physiologically I am unable to explain why.

In Respect to Purgatives.—In the after-treatment of ovarian operations, I never advise them, but always depend, as much as possible, on ox gall, internally, backed by the use of enemata, which are either of simple gruel, with castor oil, or, if the unloading of the bowels be more urgently required, of one or two ounces of the recent ox gall added to the gruel. The inspissated gall, in form of pill, acts gently without purging, by simply keeping the faecal matter in a more soluble condition, and requires less effort to expel it. This is of great value at a time when the liver is very deficient in its action. It has also another beneficial tendency—the prevention of flatus. In fact,

it is a substitute for healthy bilious secretion, at a time when it is generally deficient or wanting. The enema is at all times sufficient to unload the bowels, without straining, for I never allow the patient to empty either bladder or rectum without the assistance of catheter and enema for the first five or six days after operation, believing such efforts only disturb the healing process of the integuments, and so retard recovery, more particularly if flatus be allowed to accumulate in the bowels.

On the Operation in Respect to Age.—I have operated at all ages, from sixteen to fifty-seven; and have been pretty equally successful at most of the ages included, no age particularly presenting itself more successful than others. If the majority of young females die from shock, or from inflammation, it is equally apparent the majority at advanced ages die from prostration. Still, had I the choice, I should prefer that period of life for the operation when menstruation is about to cease or had altogether ceased. Such cases (if not worn down or too much emaciated by the disease previously), I think, have the best chance of success, are less liable to inflammation, and, I believe, bear the operation better, being more disposed to submit, and less impatient under the restraint and self-denial so necessary in such cases. Having made these observations, I may remark that I believe I have been mainly instrumental in bringing ovariectomy before the public, although I have had much to contend with, and have often been grossly misrepresented; still, in spite of every opposition, I have lived to see it established (under proper circumstances) as a legitimate operation in surgery, and practised by others with a fair share of success. Had I never accomplished any other great object in my professional career than this, I still fancy I shall not have lived altogether in vain, but have contributed something to the benefit of my species. To all who have the slightest idea of the magnitude and uncertainties of this operation, the incessant care, and constant attention required subsequently to conduct such cases to a successful issue—such will readily admit that a rate of rather more than 70 per cent. of recoveries is a victory in modern surgical art worth contending for. I am also impressed with the belief that this operation is not a very suitable one to offer a great prospect of success in large hospitals. The constant, almost indefatigable attention for a considerable time will always be best provided by a private operator, whose credit and interest are at stake, and who spares neither time, trouble, nor inconvenience to accomplish success. Perhaps no persons not so disposed should have anything to do with extensive and important operations, particularly those of the female abdomen. In addition to these operations, I have once made the Cæsarian section with partial success, the patient living to the fifteenth day, but the poor object being in the last stage of phthisis, sank more from that disease than the effects of the operation.

Lastly, I had so far back as in 1844, extirpated both uterus and ovaries. These cases were reported in the Medical Times of that year as unsuccessful operations. It will here be necessary to give a short outline of one of these cases.

A. Brooks, of Staleybridge, aged fifty-two. Had an enormously enlarged abdomen; the disease had existed sixteen years. The swelling did not occupy more of one side than the other, or at least the preponderance was so trifling that it could not be stated with any certainty. Menstruation had always been irregular, but never suppressed; there was much greater density on the left side: it was therefore considered by my friends and myself as ovarian. I therefore operated on January 16th, 1844. Immediately after the first incision, about twelve inches in length, it was evident that extensive disease existed, independent of the left ovary, which was enlarged to about four pounds in weight. The uterus itself was enlarged to twenty pounds in weight, and the cystic deposit amounted to about eight pounds, making thirty-two pounds in all. Having proceeded so far, the question arose, what was to be done? I determined to extirpate the whole, converting the vagina into a *cul-de-sac*. The operation was soon and easily accomplished; inflammation set in and was subdued; subsequent depression and exhaustion supervened, from which she rallied. On the twelfth day she was doing so well that every

reasonable hope was entertained of her ultimate recovery; a nutritious diet had been given, and everything promised well. From the fact of both ovaries and uterus having been extirpated, my interest was doubly excited. On the thirteenth day the nurse put an end to all the flattering prospect by an accident. On lifting her from the bed to ease the bedding, the patient fell on the floor somewhat violently, although three women had hold of her; the result was, inflammatory action arose, and though every assistance was rendered, she died on the morning of the fifteenth day. The result was most mortifying, for had not the accident happened, I feel assured the case was doing so well that a recovery might have been confidently anticipated. The length of time from the operation, and the difficulties already overcome, fully entitle me to think so. This case, of course, will be used statistically against the operation of ovariectomy, although in reality it was a most successful one as far as the operation was concerned, and was, in fact, the first operation in the world where both uterus and ovaries were extirpated through the abdominal walls. Reflecting on this case, it appeared to me quite possible for a female to recover with the uterus extirpated. I had frequently extirpated one ovary successfully, I had also successfully removed both ovaries; and in the case just given both the uterus and ovaries had been taken away, the patient lived to the fifteenth day, and in all probability would have entirely recovered but for the accident.

I therefore determined in my own mind on the extirpation of the uterus and its appendages, if ever a favourable opportunity presented. I was nearly attempting it three years ago in a case brought to me by Dr. West, of this society.

The third case, which presented itself to me in Jan. 1858, I now give in detail:—

Miss N., of S—, consulted me respecting a large abdominal tumour; she had complained of uneasy symptoms for some years previously. In other respects quite healthy, was but little emaciated; menstrual periods had always been quite regular, the tumour was largest on the right side, very solid, irregular in its form, intensely hard, easily movable, indicating no adhesions of any consequence. Its weight at this time appeared to be five or six pounds. She complained of weight and feeling of bearing down. On making a vaginal examination, I found the tumour filling up a large portion of the pelvic basin, and it was with difficulty the finger could pass along the sacrum, and still greater in trying to reach the os uteri, in the direction of the pubes, behind which I supposed the os uteri was to be found, as there was no trace of it in any other direction. Up to this period there had been no difficulty in passing urine; no obstruction to menstruation, but it was always necessary to use an enema to secure a movement from the bowels, and then the forced fecal matter was flattened like tape. As the tumour had not apparently increased in size for the last few months, I advised her to wait, that its progress might be watched; but if the difficulties in voiding urine or motions increased to visit me again. My first impression of this case was that it was uterine, although it in many points resembled ovarian; my inability to reach the os added to the difficulty, but the intense hardness was only such as is felt in uterine fibrous masses, whilst the irregular lobulated form and its mobility indicated an ovarian character; one point, however, it is necessary to state, that whilst the pelvic mass was immovable, it was not in the least affected by the mobility of the abdominal portion. In 1862 she visited me two or three times; the main features of the case continued much the same, except that she appeared more emaciated, and the filling up of the pelvis was now so nearly complete, that I apprehended very soon an entire stoppage would occur, and inability to discharge the contents of the bowels and bladder would force me to some step for relief. It was impossible to pass the finger along the curve of the sacrum without injuring the perineum, and by the pubes it was impossible to pass even a bougie. I therefore fixed the 2d day of January, 1863, for the operation, stipulating that, after making an exploratory incision, I should be at liberty to forego the extirpation if any peculiar difficulties presented themselves. On the day stated, in presence of Dr. Hammond, of Preston, Mr. Carr, of Sheffield, and Mr. Edlin, surgeons (the room being

previously heated to 74° Fahr.), I made an incision of about eleven inches, when a large uterine tumour came in view, of very irregular shape, one portion of which was firmly imbedded in the pelvis; the upper and larger portion (that could be easily moved from side to side) was quite free from any but its natural attachments, and I hoped the pelvic portion would prove also free, but though there were no adhesions, it was with the greatest difficulty it could be dislodged from the pelvic cavity, and it required considerable force to effect it. The ovaries on both sides were close to the uterine tumour, the broad ligaments being entirely involved in it, and forming a partial covering to the mass. At the posterior part of the tumour were three nodules or excrescences, about the size of small eggs, indicating beyond all doubt the fibroid character of the disease. The right ovary was diseased, but not much enlarged; the left ovary about the natural size, but discoloured; and the surface of the tumour, where it was covered by the broad ligaments, was freely injected with vessels. I dissected the broad ligaments from the tumour, and securing them by ligature divided them, and continued my progress down to the cervix. Having satisfied myself by passing my finger well around it, I placed a ligature on it just immediately above the plane of the os, consisting of three strands of strong Indian hemp, and then divided the cervix. My intention in so doing was to secure the os itself for the summit of the vaginal canal, and to keep entire the vagina in its full integrity, rather than run the risk, as I had done in the case of 1844, of gathering together within the ligature the vaginal coats, just below the os; in that case, if it had recovered, I should have had a short and contracted vaginal canal, with less certainty of healing. In the present case I placed full reliance on the powers of nature, by the help of the ligature, to obliterate the passage through the os, and prevent the admission of air (so much feared by many) within the abdominal cavity. The tumour was removed with very trifling loss of blood; the integuments were brought together and secured by six interrupted sutures, padded, bandaged, and the patient placed comfortably in bed in about fifteen minutes from the commencement. Three grains of solid opium were given.

Immediately after the operation, Prof. Simpson arrived unexpectedly from Edinburgh, and carefully examined the tumour as well as the patient, in which he felt great interest. At his special request the tumour was forwarded to Edinburgh for more minute investigation. I have since received from him the following remarks, which I have extracted from his letter, dated Jan. 21, 1863.

"I have repeatedly and carefully examined the mass of fibroids which you extirpated. The os uteri is not included in it; but the cervix uteri appears to have been divided and cut through immediately above the plane of the os. The uterine cavity is dilated and elongated, and contains a semi-pedicated or polypoid fibroid of the size of a small walnut. The whole mass weighs eleven pounds; one ovary and fallopian tube is attached to it, the other cut through in the course of its length. The whole mass then consists of the entire body and the cervix up to the os, with a large mass of fibroid tumours growing in their walls.

"I have had a drawing made for a woodcut, of which I will soon send you a copy, intending to illustrate the position and form of fibroids, and the changes produced by them in the uterine cavity.

"Your case may turn out as a precedent for operative interference in some exceptional cases of large fibroids of the uterus, and I congratulate you most sincerely on the happy recovery of your patient."

I need not occupy your time with any further description of the tumour after this letter, except to remark there was but little vascularity in the mass itself; but the broad ligaments seemed more freely supplied with blood-vessels than is usual. I need not occupy much of your time in the after treatment of this case, being very similar to that of ovarian extirpation. For the first twenty-four hours the retching and vomiting were extremely troublesome, but she had occasional short sleeps from the opiate, which was renewed to the extent from eight to nine grains in the first day and night. The second, third, and fourth days were entirely occupied in subduing peritoneal inflammation, which had ceased by the end of the fourth day. The secretion

of the urine was free from the first, and the bladder was often emptied by catheter; after the fourth day it was more than usually copious (which I always esteem a favourable sign). On the fourth day the bowels were relieved by enema, and part of the interrupted sutures removed (I generally remove them on the third day); but in this case one or two of the sutures had broken through the skin already, and I thought it best to keep the remainder in a little longer than usual; the abdomen was now assuming its natural size, but on the sixth day it again became distended, and I feared some further inflammatory action, and active fomentations were resumed with good effect. On the eighth day beef-tea and isinglass were taken and relished, which was now necessary, as some indications of prostration beginning and increasing the following day (which was the ninth), so as to create some alarm for her safety; she became also restless, and required opiates. On the tenth day she had passed a good night, and was considerably better; eleventh and twelfth days, still improving, the bowels acting regularly, occasional natural sleep, and a desire for food. On the fourteenth day pus was freely discharged along the ligatures, showing the work of reparation was progressing favourably. The urine was loaded with a dark sediment that had a very foetid smell, and continued in this condition for some days after. On the fifteenth day two of the ligatures came away, the pus decreased, the urine was less foetid. Sixteenth, seventeenth and eighteenth days were marked by general improvement; all the ligatures except that on the cervix had come away; this latter still felt firmly adherent, and I was not in the least desirous to use traction. I therefore determined to allow it time to release itself. Nineteenth day, food taken with quite a relish, consisting of mutton chop, oysters, poached eggs, milk and light puddings, porter, and occasionally a little wine. Twenty-first and twenty-second days she sat up (two hours at a time). From this time her progress was that of continued improvement; occasionally her nights were rather restless, from the amount of food the stomach was called upon to digest; disliking the constipating effects of usual opiates, I gave thirty-five drops of Nupenthæ as a sedative, and found it answer every purpose without confining the bowels. On the completion of the thirtieth day from the operation I still found the ligature attached to the cervix, but somewhat looser, but as there was no wound except the small aperture through which the ligature came out (and that no inconvenience) I let it remain.

On the 6th of February, 1863, and thirty-five days from the operation, my patient returned to her friends, and bore a railway journey of nearly forty miles, without any inconvenience or apparent fatigue.

This, I believe, is the first operation of its kind established as a cure in the British dominions; *that is, the extirpation of the uterus and its appendages entire, through the walls of the abdomen.* The cases in 1844 were (as far as the operation and their immediate consequences were concerned) decidedly successful, and, but for an accident as unforeseen as mortifying, a recovery was all but certain.

I would just add in conclusion, that in four cases of ovarian cysts—inject-
ed by strong tincture of iodine—three have entirely recovered; one died from inflammation; two of the cures, though some years ago, show no signs of the disease returning.—*Obstetrical Transactions, Vol. 5, 1864, p. 58.*

91.—ON THE TREATMENT OF OVARIAN DROPSY.

By I. BAKER BROWN, Esq.

[Until recently, Mr. Brown along with most of the profession, considered that a unilocular cyst springs always from the Fallopian tube, and a multilocular one always from the ovary. Within the last few days, however, he has met with a large multilocular cyst springing entirely from the broad ligament, and quite unconnected with the ovary. In the case of a unilocular cyst Mr. Brown advocates the plan of tapping and pressure, before attempting extirpation. To a successful termination of a case it is essential that there be no breaking down of the vital powers. We have no right to expect a happy result where the vital power is low or exhausted. Mr. Brown proceeds:]

I will now suppose that it has been agreed that a case shall be operated upon. What then, gentlemen, is the next step? It is to prepare the patient. On this I lay very great stress. It is highly important that the operator should not only get the bowels cleared out and see that the kidneys are secreting healthily, but he should be especially careful that the skin is acting favourably and well. To secure this action the patient should have three or four warm baths in the course of a week or ten days. It will depend very much upon the action of the skin whether or not there is effusion into the peritoneum. I also give my patients steel in combination with tincture of arnica. Having got the patient perfectly prepared, and being careful to operate a week after the menstrual period, so that all the uterine organs may be in as quiet a state as possible, the next thing to consider is the position of the patient. There are various plans adopted, and each operator seems to follow his own; but in this, as in many other matters, little deviations make no difference in the real operation. I always place the patient on her back, with her legs protruding over the edge of the table, her head supported by a pillow; an assistant holds each leg widely apart from the other, and I stand between the legs. Under these circumstances the operation is one of the simplest in surgery. There is no difficulty in performing it. It requires merely a cool head, a steady hand, and a ready adaptation of means to ends. An incision is made of about two or three inches between the umbilicus and pubes. Two or three sweeps with the knife are made until the skin, fat, and muscles are divided. (Here I would give a caution. I used formerly not even to employ a director, but to cut down, carefully dissecting quite through until I came to the cyst. The rapidity with which the operation was thus effected was tempting. One day, however, I happened to be in a more cautious mood than usual; I used my director, and came to a semi-transparent body lying just in the centre of the wound which I had made. It did not look like a cyst, and on examination I found it to be a knuckle of intestine, which had got fastened up, and which adhered to the cyst between the parietes and the tumour. It was easily detached, the adhesion not being of long standing, and the operation was proceeded with; but if I had gone on in my usual way, I might have cut into the bowel and so killed my patient.) Having dissected down to the peritoneum, a small opening is made, and a large broad-grooved director introduced; then, instead of using a knife, the point of which might do mischief, I employ a pair of scissors (Fig. 1). As the point is turned outwards, no possible harm can be done. The tumour is then seized with a pair of vulsellum forceps, which are held by an assistant or the operator. A large trocar is introduced into the cyst, and the fluid allowed to pass off as fast as practicable; and if there be more than one cyst, each is tapped until the mass is sufficiently reduced in size to come out of the opening which has been made. If it is found that the mass cannot be got through this opening, the incision should be extended upwards beyond the umbilicus, unless the cysts can be further tapped and so reduced sufficiently. Frequently a second pair of forceps will be required to hold the mass. If there be adhesions, they must be broken down or tied. If the adhesions be to the omentum, they must be first tied with silver wire and then cut off anterior to the ligature. (In one case, the whole of the omentum being adherent, I tied eight separate portions in this way, and in no one instance have I seen any ill result from such a course). Having thus removed the adhesions, an attempt must be made to withdraw the mass. If it does not come out, it is certain that there are adhesions underneath in the pelvis, or on the pelvic rim. These adhesions must be traced out and broken down, if possible; if this cannot be done they must be separated, and tied with silver wire or twine. If with silver wire, let the ligatures remain in the cavity of the abdomen; if with twine, my plan is to bring the ligature outside. The next step is to bring the tumour out, and put it in a basin. It is then seen to which ovary the growth is attached, and whether the pedicle of the tumour is long or short. At this stage of the operation different plans are adopted by different ovariotomists. Dr. Clay uses a ligature of Indian hemp, and returns the tied pedicle into the cavity of the abdomen. Dr. Tyler Smith has latterly followed

a practice first adopted by Dr. S. Rogers, in New York, in 1829, afterwards by Dr. Billinger, of the same city, in 1835, and by Dr. Siebold, of Darmstadt, in 1846—viz., of tying the pedicle, cutting the ligature off short, removing the tumour, and closing the whole wound at once. All these gentlemen have been successful. Dr. Tyler Smith has had seven or eight successful cases; and I hear that Mr. Fergusson has lately adopted this plan of procedure with success. If experience confirm these happy results, then certainly this plan will supersede both the twine or silk ligature and the clamp, which I and others generally use; for, as a rule, I employ a common clamp resembling a pair of carpenter's callipers, a little improved by our instrument maker, Mr. Pratt. It is a somewhat lighter instrument, but the principle is the same. The tumour is cut off close, and the clamp remains outside the abdomen. It happens sometimes that the pedicle is so broad that no clamp can grasp it, or the adhesions may extend from the pedicle, running up one side and occupying half the pelvic rim. We had a case of that description here, and we had to take up four different pieces. We had only three clamps; these were used, and the fourth piece was tied with Indian hemp. The patient made a capital recovery.



Fig. 1.

It is sometimes found that both ovaries are diseased, and the second should always be examined for the purpose of ascertaining whether such be the case or not. If the second be diseased, and cysts are found growing from it, it is better, if they are small, to cut them open down to the base, and then tie; or, if there are many of them, to tie or clamp (you cannot generally clamp) the ovary, and cut it off. Sometimes the second ovary will have as distinct and large a growth as the first that was removed. I have seen two instances in private practice where this was the case. Both patients did well. In the last operation we had in this institution both ovaries were diseased, the second less than the first; both had multilocular tumours. These tumours were secured by clamps in the way I have recommended, and this patient also made a good recovery.

Having so far succeeded, the next step is to remove any fluids or blood

which may have escaped into the abdomen. I should have mentioned before, that to avoid the escape of blood from the cut wound, an assistant is required on each side with warm flannels in their hands. They grasp the edges of the wound, and hold them everted as the incision is made. If the wound bleed, the blood comes into the flannel; and if the intestines rise up, the flannels keep them back. There is, perhaps, no operation in surgery where more depends upon good assistants. But even after using the flannels, blood or fluid will sometimes escape into the cavity of the abdomen. And here again there is a diversity of opinion as to practice. Some recommend sponging out freely from the cavity every particle of blood or fluid, and those gentlemen who advise this course have had great success; but I have myself, in more than one instance, seen the sponge do positive mischief. If the experiment be made of putting a piece of sponge into the cavity of the abdomen, letting it rest upon the peritoneum, it will be seen how soon the sponge will stick so firmly that it can hardly be torn off. In a case I once saw, I observed this danger. I saw that the sponge irritated the peritoneal coat very much, and therefore determined not to use it. I now use new, warm Welsh flannel, and remove every clot of blood I can find; but with regard to simple fluid escaping from the cyst, unless it be of a purulent or acrid nature, I do not lay great stress upon getting it all out, and certainly the results have in my hands been just as good as where sponging has been employed. It has also happened, on more than one occasion where the sponge has been used, that a piece of it has been left in the body, and has there remained undiscovered until the post-mortem examination disclosed it.

The next thing is the closing of the wound. Much has been said and much written upon this subject. Some have used hair-pins; some, silver sutures; some, three or four deep twine sutures, besides several interrupted sutures. Some lay great stress on enclosing the peritoneum; others say that the peritoneum is of secondary importance. Now it appears to me that the sutures should be placed as deep as the edges of the wound, so that every portion of divided tissue may be brought exactly in apposition. For this purpose it not necessary to take up any of the peritoneum. The simplest way of passing the sutures is to have a needle like that represented in Fig. 2, which I had made on purpose. It is passed through the first side, and then the second; then the assistant threads the needle, and by simply twisting it back, withdraws it. Unfasten the wire suture, and the thing is done. By a simple twist of the wire three times upon itself the edges of the wound are brought perfectly together. The sutures are placed about half an inch distant from each other. When four, five, or six have been put in, the parts will be perfectly in apposition down to within an inch of the clamp. Here I come to another practical point. When the clamp is neared, the wound should not be closed exactly, because if it be so the pedicle will grow to the cut edges; and when the clamp is removed—which should be done in two, three, or four days, as soon as the parts of the pedicle are thoroughly dead—it will be found that the pedicle will be so adherent to the edges of the opening that it will not recede and fall within the cavity of the pelvis. This, again, I learned from experience in this institution, in two cases where I clamped and kept the clamp on some six or seven days. The patients made good recoveries, but when menstruation came on, the skin broke over the stump, and there was vicarious menstruation every month. Be-

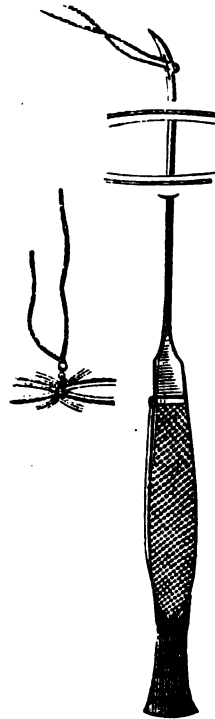


Fig. 2.

lieving this to be not only a most disagreeable but an undesirable result, I now leave a sufficient space between the clamp and the wound, so that when the clamp is taken off, the pedicle must fall in and be covered up by the subsequent union of the two edges, which are brought together by straps of plaster. I understand that this vicarious menstruation has been disbelieved in this city by some eminent physicians, but it is a fact which is well attested. I have recorded it in my book on Ovarian Dropsy, and it can be proved by the evidence of many gentlemen who have visited this institution. One lady on whom I operated frequently visited me, complaining of the great discomfort of this abnormal menstruation. This was four or five years ago. She is now pregnant for the first time in her life, and her pain is very great from the stump, which is thinly covered with skin. It will be seen, then, that the hint which I have just given is important.

The sutures having been placed, the wound is covered with oiled or wet lint; then a many-tailed flannel bandage is put on. I have used this bandage for many years, and it has the advantage of being extremely easy of application. If the patient is bandaged with an ordinary flannel bandage, it is very irksome and detrimental. This one is made with two loops to enable it to be used larger or smaller. The string on one side is brought through the loop on the opposite side; and the string on that side which comes from the root of the loop is passed through the one on the opposite side. By this means the parts are brought perfectly in apposition, and the strings are tied in a bow. The advantages of this bandage are greater than at first appear. Tympanitis often follows the operation; and if the bandage is not such that it can be removed and altered at pleasure, the patient will suffer great discomfort. Now the nurse or surgeon in attendance, finding tightness or distension, can loosen this bandage more or less as may be required; and when the wound requires dressing or looking at, the strings have but to be untied.—*Lancet*. Feb. 13, 1864, p. 177.

92.—SYPHON-TROCAR AND HOOKED CANULA FOR OVARIOTOMY.

By T. SPENCER WELLS, Esq.

[Mr. Wells has been so often written to by his friends for an account of the canula used by him in ovariectomy that he gives an account of the instrument. It is a syphon-trocar, having an india-rubber ball fixed three or four inches from the extremity, and a pair of self-applying hooks between this and the point. The instrument may be obtained from Weiss. The following advantages are gained by its use:]

1. Instantaneous escape of the contents after the cyst has been punctured. This is of great consequence, as the short time occupied in withdrawing a solid trocar from the canula may permit some escape of fluid from a tense cyst between the cyst and canula, and lead to an enlargement of the opening.

2. Complete protection (by withdrawing the point) from injuring or piercing the cyst involuntarily.

3. Secure compression of the opening in the cyst against the canula, and a safe mode of drawing the emptied cyst from the abdomen by one instrument.

4. A convenient mode of carrying off the fluid without wetting the patient's clothes or bedding, and (by means of the india-rubber ball which forms part of the tube) of exciting some force of suction and ejection, and so cleaning the canula or tube of any obstruction.—*British Medical Journal*, Dec. 12, 1863, p. 651.

93.—CASE OF ENLARGED OVARY; TAPPING THROUGH THE VAGINAL WALL; RECOVERY.

By Dr. J. BRISBANE, Galashiels.

[The patient suffered from various symptoms indicating ovarian disease up to the period which we select as the commencement of our reprint of the case.]

At this time, on examination per vaginam, a smooth globular tumour, somewhat larger than a walnut, situated behind and to the left of the uterus, was felt. On examination per rectum it was felt more distinctly. From the pressure of this upon the rectum, great difficulty and pain were experienced on defecation; nor indeed could a stool be passed at all unless it were liquid. It was also found almost impossible to throw up enemata, the nurse stating that there was some obstruction which forced back the fluid as fast as she pumped it up. On touching this swelling, either per rectum or vaginam, the patient recognised it as the centre of all her sufferings.

Assisted by Dr. Brown, I proceeded to tap. Before plunging the trocar into the swelling, I suggested that one of Dr. Alex. Wood's syringes should be introduced as a sort of *exploratory* puncture. The uterine sound being introduced, and the uterus held aside by Dr. Brown, I introduced, guided by the index finger, the nozzle of the small syringe, and plunged it into the tumour. By elevating the piston I thus filled the syringe, and removed 3i. of clear amber-coloured fluid. It was thus introduced several times; and had the nozzle of the syringe been of sufficient length, so that I could have unscrewed it externally to the vagina, I could thus have emptied the cyst almost entirely. As, however, the screw of the syringe was situated considerably within the vaginal orifice, so that it was very difficult and almost impossible to screw and rescrew it so often, I plunged a fine trocar into it, and allowed the greater portion of the fluid to dribble away. The fluid thus drawn off was of a clear amber colour, perfectly homogeneous, and coagulated immediately into a stiff tenacious jelly. It was evidently an inflammatory product. I have no doubt that a chronic inflammatory action had been set up in the left ovary, consequent on the violent purging to which she subjected herself after her first illness; at least she dates her ailment from that time, and it had, no doubt, with occasional remissions, been going on up to the time when it reached its acme of intensity immediately before the operation.

The patient was much relieved. Defecation, which formerly had been extremely difficult and painful, was now comparatively easy. An enema, which she had the following day, passed up without difficulty, and there was no forcing back, such as was formerly experienced. The severe burning pain which has annoyed her so much materially abated, and the general symptoms gradually improved. A discharge of fluid continued for some time after this, together with an *uneasiness* (she stated she could hardly call it pain) in the left iliac region. A succession of blisters and a change to the seaside have done much to remove this; and upon the whole, she feels as strong and healthy as she ever did, and more so than she had been for some years past.

Regarding this operation, I would remark that the use of Dr. A. Wood's syringe, in the manner above mentioned, is, so far as I am aware, novel. I have never heard of its having been before applied in the capacity of an exploring needle. Its great superiority, however, over the ordinary needle is sufficiently apparent, when fluid contents require to be examined, as a considerable quantity can thus be obtained for examination. Small cysts, such as ganglia, &c., might also be emptied in this way, and afterwards, if it was thought necessary, injected with iodine.—*Edinburg Medical Journal*, Dec. 1863, p. 548.

94.—ON THE APPLICATION OF ACUPRESSURE IN THE OPERATION OF OVARIOTOMY.

By Dr. J. Y. SIMPSON, F. R. S. E., Professor of Medicine and Midwifery in the University of Edinburgh.

It has been hitherto a difficult problem to obstruct the vessels of the ovarian ligament in ovariectomy without leaving a foreign body upon the stalk of the tumour, either to ulcerate or to slough through it. The stump of the ovarian pedicle—in cases where the pedicle is ligatured *en masse*—forms necessarily a dangerous element against the success of the operation; for it is allowed to pass backwards into the cavity of the peritoneum so strangulated as inevitably to produce ulceration or mortification in the ligatured part. Again, when the clamp is used, the straining and drag upon a shortened pedicle is sometimes so great as to endanger the life of the patient, on the same principle as a piece of stretched omentum in a strangulated hernia does so. Besides, the pedicle when clamped and dragged out externally prevents the lower part of the wound from healing until the clamp is removed and the pedicle retracts. It sometimes is long in sloughing through the strangulated pedicle. In a case of ovariectomy which I performed last year, the clamp was twelve or thirteen days before it separated. The patient made a perfect recovery, but there was an umbilical-like wound in the abdominal walls from this effect of the clamp, which was long of healing. I left the clamp on in this case thus long in order to see the length of time it would take to ulcerate through the pedicle, particularly as there were no symptoms urging its removal. When removed early, that is, on the second or third day, the pedicle is apt to become retracted with a piece of dead and compressed tissue attached to it. In the Medical Times for March, 1860, page 285, I ventured to suggest a mode of applying acupressure to the ovarian stalk in cases where ovarian disease removed by extirpation, but I am not aware that that method has yet been tried. In the following case of ovariectomy I lately applied acupressure successfully in another and a different way.

Case 21.—Ovariectomy—Acupressure applied to the Stalk, and removed in Forty-six Hours.—The patient was married, the mother of one child, and had been three times tapped. The multilocular ovarian tumour weighed upwards of 30 lbs. The largest cyst contained 23 lbs. of pure pus. The tumour was universally adherent, in front, to the abdominal walls. After detaching it, and having drawn it out externally, I applied a clamp to the ovarian stalk so near the tumour as to include a portion of it. After the tumour was removed, the uterus and attached parts showed a strong tendency to pull the clamp downwards to the pelvic brim. It was evident that it could not be left on without great and inevitable dragging upon the pedicle. I then passed a glass headed needle, two and a-half inches long, twice through the ovarian stalk, immediately below the clamp. In passing it thus twice, I left out at either side a portion of tissue, to which no compression was to be applied, with the hope that it would supply with blood and vitality the strangulated stump of the ovarian stalk. The needle was thus placed under nearly the same conditions as in the method of acupressure which I have previously described, and which, let me add, I believe practitioners will find the simplest and most serviceable of all the forms described for common wounds. To compress the stalk sufficiently, I threw over the point-end of the needle a loop of strong tinned iron wire of the size described by iron-workers as No. 22, twisted it half round the headed end of the acupressure needle, and then drew it with sufficient tightness to prevent any discharge of blood from the included vessels. A slender cylindrical iron hood, three-quarters of an inch in length, was placed over the sharp end of the needle to prevent injury and lesions from it; and this hood was fixed to the head-end of the acupressure needle by a duplicature of slender suture wire of the size No. 32. The clamp was then removed; the small remaining portion of the tumour which it embraced was excised; and the acupressure needle was care-

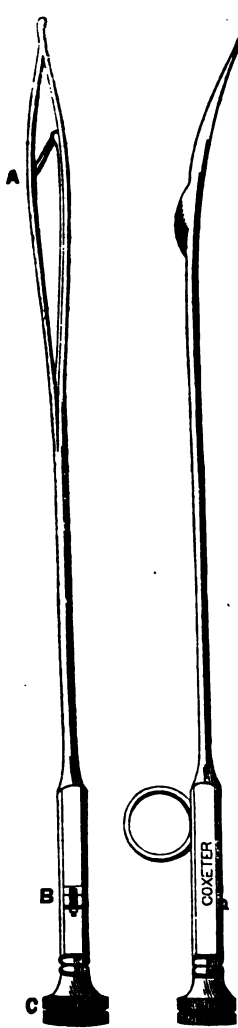
fully placed across the brim of the pelvis. A string attached to the beaded head of the needle and the wires used in compressing the stalk were left out at the lower edge of the abdominal wound. The wound itself was united by stitches of iron thread, passed so as to embrace the peritoneum, except in one instance, where the stitch was only superficial. The wire threads were carefully moulded to the exact shape of the parts in which they were each respectively placed, by pressing each in succession with two fingers, one applied inside and one out. The acupressure apparatus was removed in forty-six hours by merely pulling at the head of the acupressure pin. The two sets of wires, one of them carrying the hood, came out with it. Four days after the operation, all the deep iron stitches, without a drop of pus following any of them, were removed, and the wound was found healed from end to end by the first intention. The superficial iron stitch was left in a few days longer, and two or three drops of purulent matter followed its withdrawal. Thirteen days after the operation, the cicatrix at its uppermost end opened under a fit of coughing, and a quantity of pus which had been forming a small swelling there for a few days escaped. In this instance there existed before the operation the purulent diathesis in the most marked form; the patient's pulse was never for weeks under 100, and usually considerably higher, and there was a purulent collection of 23 lbs. of matter within her body. Since the small abscess in the abdominal walls has given way, the pulse has sunk towards the natural standard, and she is rapidly regaining health and strength.

Probably, it will turn out, that allowing the tied ovarian pedicle to pass back into its normal situation under the compression of an acupressure needle, and removing that needle in a day or two after its application, will diminish the risks and mortality attendant upon ovariectomy. I am the more inclined to take this view, from seeing it stated, in the last edition of Dr. Churchill's very able work on the Diseases of Women, that my friend, Dr. Tyler Smith, of London, has only lost three out of eighteen cases of ovariectomy; and the principal peculiarity, I believe in Dr. Smith's mode of operating consists in allowing the stalk of the tumour, tied with an organic ligature of silk or cord cut off short, to slip back at once into the cavity of the abdomen. In this method we encounter the dangers occurring from a foreign body, such as a ligature being left permanently within the cavity of the abdomen, and from the tied end of the stalk being ulcerated and sphacelated by that ligature. In acupressure we avoid both of these dangers.—*Medical Times and Gazette*, Feb. 6, 1864, p. 143.

95.—AN INSTRUMENT FOR DILATING THE CANAL OF THE CERVIX UTERI.

By Dr. WM. O. PRIESTLEY, Professor of Obstetric Medicine in King's College, London.

Mr. Coxeter, of Grafton-street, has recently made, under my direction, a dilator for the os and cervix uteri, which I have found very convenient and effective, and which may be serviceable in the hands of other practitioners. The instrument consists of two blades in lateral apposition, united at their extremities, and again about five inches lower down, being ununited in the interval. The form is that of an uterine sound. A projection two and a-half inches from the point indicates the length of the uterine cavity, and the finger can ascertain by its position how far the instrument has passed into the womb. The mechanism is borrowed from Mr. Henry Thompson's dilator for the male urethra. A small cross-bar, forming a lever, lies between the ununited portion of the blades at A, and this is made to assume a position more or less horizontal by means of a wire passed through the stem of the instrument, which is worked up and down by means of a screw (C) attached to the handle. An index at B shows how far the blades are separated in the progress of dilatation, and a ring is fixed to the under side for the insertion of the fourth or fifth finger of the left hand, to steady the instrument, while the



finger and thumb of the same hand are employed in turning the screw. In this way the right hand is free to guide the point of the sound in the necessary direction, and to keep it *in situ* during the expansion.

The advantages possessed by this form of dilator are—that it can be fashioned very small for extreme instances of contraction, where it would be very difficult to pass in a sponge-tent; and although the flexibility of the uterine sound is not consistent with its mechanism, yet it can be made of any curve required. The dilatation produced is lateral, gradual, and progressive, without necessarily being so forcible as to rupture tissue, and there is little tendency in the instrument during the separation of the blades to work itself downwards and withdraw from the os uteri.

Further, the whole cervical canal, including the os uteri internum, can be widened by this instrument, but its greatest power of expansion corresponds to the os uteri externum, where dilatation is most required.

The instruments previously in use have lacked some of the advantages mentioned, and have thus been less useful. Among others, I possess a dilator employed by the late Dr. Edward Rigby, constructed like a pair of polypus forceps, with the blades terminating in a long and slender duckbill, for insertion into the os uteri. The instrument could not be passed into an os uteri much contracted; moreover, in any case I have attempted to use it, I have not succeeded in penetrating within the os uteri beyond half an inch, and it has slipped out of the orifice directly separation of the blades was attempted. An ingenious instrument was exhibited by M. Mathieu, of Paris, in the late Industrial Exhibition. This, also, I have employed; but it has the disadvantage of dilating in an antero-posterior direction, and in practice tends to withdraw from the canal of the cervix instead of stretching the contracted parts. This last objection also applies to those exhibited by Charrière. I do not propose here to discuss the propriety of dilating the os uteri, or to point out the instances in which dilatation should be attempted. I

think it is generally admitted that cases occasionally occur in which this treatment may be pursued with advantage if it can be carried out effectually; and my own experience leads me to believe that gradual dilatation is more likely to be followed by permanent widening of the cervical canal than the more forcible and rapid distension produced by a sponge-tent.

Lastly, I may be permitted to remark that the relief experienced in some cases of dysmenorrhœa after dilatation of the cervical canal is not always apparently in proportion to the amount of previous contraction as determined by the easy or difficult introduction of the uterine sound in the menstrual interval. There are, I believe, patients to be relieved by dilatation who have no marked contraction of the orifice, but who suffer pain because the menstrual fluid is secreted more rapidly in the uterine cavity than it can escape through a cervical canal of ordinary calibre, or else, it may be, have the aperture narrowed for the time being by spasmodic contraction of the orifice such as takes place in spasmodic stricture of the urethra in the male.

I have been informed at Mr. Coxeter's that, some time ago, another practitioner had ordered Mr. Thompson's urethra dilator, without the modifications I have suggested, but with the view of employing it for dilatation of the os uteri. I have not been able to ascertain this gentleman's name; but as this short paper is simply to notice a useful instrument, and not to put forth a claim to priority, it is of little consequence.—*Medical Times and Gazette*, March 5, 1864, p. 251.

96.—"INSTRUMENT FOR DILATING THE CERVIX UTERI."

By ROBERT ELLIS, Esq., Obstetrical Surgeon to the Chelsea and Belgrave Dispensary.

My attention has been drawn to the communication of Dr. Priestley in your number for last week. It was with no little surprise that I recognised in the engraving my own instrument, made for me two years ago by Mr. Coxeter. I enclose you a tracing of my dilator, by which you will perceive that the instrument is identical in every respect, in form and in mechanical construction, with that described and delineated by Dr. Priestley. It is inexplicable to me how Mr. Coxeter could have suffered Dr. Priestley to fall into such a mistake, as he must have been well aware that I originated the instrument, together with many other modifications of obstetric instruments which Mr. Coxeter has very skilfully constructed for me.

At the close of his communication Dr. Priestley makes an indistinct acknowledgment of some priority of design, but alleges that the instrument then made was devoid of his modifications. This is altogether incorrect; the only respect in which Dr. Priestley's instrument differs from my original model consists in the trifling circumstance that mine is open to its point, and his is not—a matter of very insignificant importance.

I was led to the invention of this dilator from a consideration of the facility with which I found I could pass the uterine sound even in cases of great contraction of the cervical canal. It then occurred to me that if I could design a sound which could be made to dilate, I might contrive an instrument far better adapted to effect this purpose for the canal of the cervix than any yet introduced.

After some little trouble, and with the assistance of Mr. Coxeter's mechanical skill, I contrived the excellent dilator in question, and I have had it in constant employ since that time. I have made large use of my instrument, and had purposed publishing some account of it, with cases in which it was successful, but a great pressure of other duties has hitherto delayed me. It may confirm Dr. Priestley in his opinion of the value of what he concluded to be a new instrument, to be assured that it has already done good service in practice before the idea of its design occurred to him.—*Medical Times and Gazette*, March 19, 1864, p. 322.

97.—ON VESICO-UTERINE FISTULA.

By JAMES R. LANE, Esq., Surgeon to St. Mary's and the Lock Hospitals, and to St. Mark's Hospital for Diseases of the Rectum.

[This case, i. e., its earlier history, was published by Mr. Lane some time ago. It was in that stage rather interesting, but the sequel has turned out so singular and unexpected, that we feel it would be an omission not to republish it. A vesico-uterine fistula we need hardly say is very rare. It must not be confounded with a vesico-utero-vaginal fistula. The following is the account of the case:]

C. R., who stated her age to be forty-five, was first admitted into St. Mary's Hospital in May, 1862. Five months previously she had been delivered of her second child, at the full period, after a labour of twenty-four hours' duration. From that time till her admission she had been totally unable to retain her urine. Her clothing was in a continual state of saturation, and

her labia and thighs were severely excoriated. I found it by no means easy to discover whence the escape took place, for the vesico-vaginal septum and the urethra were perfectly sound throughout: and, judging from the difficulty attending the investigation of this case, I think it not unlikely that vesico-uterine fistula may have been sometimes overlooked, and the incontinence attributed to some other cause, such as paralysis of the sphincter of the neck of the bladder. I found, however, on examination with a speculum, that a small quantity of fluid could be seen to flow from the os uteri into the vagina, and I discovered further, by digital examination, that about half an inch above the os uteri, which was large enough to admit the tip of the finger, there was an opening in the canal of the cervix, leading forwards towards the bladder. The case was rendered perfectly clear when I found that a sound introduced into the bladder by the urethra could, by a little management, be brought into contact with the finger in the cervix uteri.

The question then was how to remedy the evil. I found that two plans of operation had been suggested by M. Jobert. The first was to make free lateral incisions in the cervix uteri and upper end of the vagina, so as to convert the cervix into an anterior and posterior flap, by separating which the fistulous opening could be got at, and sutures applied to it. The second plan was to close up the os uteri, so as to prevent the urine from escaping, but leaving the fistulous opening uninterfered with, and depending upon it to afford an outlet through which the menstrual fluid could escape into the bladder.

The first method was, of course, physiologically preferable; but its danger was, in my opinion, considerable, as evidenced by the history of the only case in which it was practised by Jobert, while its success was exceedingly doubtful. I therefore preferred the second plan, that of closing the os uteri, and put it in practice on the 14th May, 1862. I will not dwell upon details, but will merely say that I denuded the edges of the os uteri, and brought them together by means of four silver wire sutures. The incontinence of urine was arrested from that moment, the wound healed soundly, and the patient left the hospital quite well in three weeks. She menstruated through the bladder before she left, without inconvenience or pain, and menstruation was continued regularly in the same way for three months, when I lost sight of her for a time. Towards the end of the year, however, she applied to me, telling me that since August or September she had ceased to menstruate, that she had experienced various uncomfortable sensations in the uterine region, and had been increasing in size. On investigation, I found that there was certainly a tumour in the hypogastric region, which appeared to be an enlarged uterus; but on examination per vaginam, the os uteri appeared to be as firmly closed as when she left the hospital in June.

These facts seemed to admit of but one conclusion—viz., that the fistulous opening had spontaneously closed, or had become in some way blocked up; and that the menstrual fluid, being unable to escape, had accumulated within the uterus, and was the cause of the enlargement. Pregnancy, with the os uteri firmly closed, was a contingency which never presented itself to my imagination, nor I believe to that of any of those who saw the patient.

The appropriate treatment, therefore, appeared to be re-open the os uteri to allow the accumulated matters to escape; after which, supposing the fistula to be really closed, she would be restored to her original and normal condition.

She was readmitted into the hospital early in January, 1863. On the 10th of January I attempted to divide the uniting substance with a small knife guided by my finger; but I found it impossible to do this owing to the mobility of the uterus, and the firmness of the uniting medium. I therefore resorted to a trocar and canula, a speculum having been introduced to bring the os uteri into view; but before the trocar would penetrate I found it necessary to hold the os uteri steady with a volsellum, and to use an unexpected degree of force. Only two or three drops of blood escaped through the canula; but I satisfied myself that I had really opened into the uterus by passing a small bougie, which readily penetrated to the depth of about three inches. The

next day I was informed that a considerable quantity of watery fluid had escaped during the afternoon after the puncture had been made, and that she had complained of pain. The discharge of water, however, had soon ceased, and had not been repeated. On the following day I learned, to my extreme surprise, that she had been taken ill during the night, and that a foetus of about four months' date had made its appearance. The watery discharge which followed the puncture was, therefore, doubtless, the liquor amnii, and was thus clearly accounted for. The patient recovered rapidly from her miscarriage; but the cicatrix formed by my operation was, of course, completely broken down by the passage of the foetus, and the os uteri was permanently reopened. The urine escaped through it precisely as it did before my first operation. She left the hospital for a time on the 10th of February, but shortly afterwards applied to me with an urgent request to be readmitted, in order that the original operation might be repeated. This I did on the 14th March in the same way as before, and with the same result. Nothing untoward occurred; the wound healed firmly, and the incontinence of urine ceased. She menstruated through the bladder about a week after the operation as on the former occasion, and left the hospital in about three weeks. I saw her at intervals for a considerable time. The last occasion was in September, since which I have lost sight of her; but I know she would have immediately come to me had anything unusual occurred. When I saw her in September, which was six months after the operation, she had menstruated regularly through the bladder without any difficulty. No trace of menstrual secretion had been discharged excepting through the bladder, nor had any escape of urine occurred through the os uteri; neither was there anything to indicate a repetition of the mysterious pregnancy which had followed the first operation.

The question which next suggests itself is, how conception could in this instance have taken place. Either the seminal secretion must have passed through the urethra and bladder into the uterus—an explanation which I am very unwilling to adopt,—or there could not have been an absolutely complete closure of the os uteri. If, however, there were really an aperture of this kind left, it must have been exceedingly minute; for it was quite undiscernible by repeated examination, and no appreciable amount of urine escaped through it. Indeed, the union appeared to be singularly firm, as evidenced by the difficulty I found in penetrating through it. Had the union not been so firm, I should have suggested the possibility of a portion of it having been broken down during sexual intercourse, and of an inlet for the seminal fluid having been thus provided. A small opening so caused might have closed again spontaneously after the mischief, if I may so call it, had been done. On the whole, however, I am inclined to think that a capillary channel may have existed along the track of the wire sutures, one of which had disappeared and escaped detection when the others were removed, and was not taken away till a considerable time afterwards. Should this latter supposition be correct, the fact is a very curious one, as showing how minute a communication may suffice for impregnation; and it is especially interesting in these days, when enlargement of the natural dimensions of the canal of the cervix uteri by dilatation or incision is recommended by high authorities, and frequently practised, for the cure of sterility. On this point M. Nélaton has made some humorous remarks, contrasting the size of the spermatic filaments with that of the passage they are intended to traverse, and suggesting that an enlargement of that passage, instead of facilitating their transit, might seriously embarrass them by causing them to lose their way.

It may, perhaps, be a question whether I did right to repeat the operation which I had performed in the first instance, since it had failed in permanently effecting its object, and had not prevented impregnation. In my judgment, it was the best thing that could be done—first, because, though I cannot satisfactorily explain how impregnation had been effected, I believed it to have been an entirely exceptional occurrence, and not likely to recur; and, secondly, because I preferred an operation which was attended with only trifling pain or inconvenience, and was at the same time safe and toler-

ably certain, to the alternative of some other proceeding, such as that first practised by Jobert, which would certainly have put the life of the patient into considerable immediate danger, and the success of which in attaining the object desired was extremely problematical.

It has now been fully established, by repeated observation, that menstruation may take place through the bladder without any detriment or inconvenience. The periodical function of the uterus is not interrupted on the one hand, nor, on the other, does the bladder in any way resent the passage through it of the menstrual secretion. At the menstrual periods the urine becomes bright red, and remains so for four or five days; and were it not for this alteration of colour the patient would often be unaware of what was taking place. The cases in which this has been most frequently tested are cases of vesico-utero-vaginal fistulæ. Here there is often extensive destruction of the upper part of the vagina and of the anterior portion of the os uteri, in consequence of which a large gaping aperture is left, the edges of which cannot be approximated by any degree of traction. These cases are often remediable in no other way than by turning the os uteri forwards into the gap, and fixing it by stitching the anterior or vaginal border of the fistula to the posterior lip of the os uteri, thus making use of the latter to fill up the deficiency, and causing it for the future to form part of the wall of the bladder, the vagina being converted into a blind cul-de-sac. This has now been repeatedly done, and with the most satisfactory results. No case of subsequent pregnancy has been recorded in these cases, which is an additional reason for rejecting the hypothesis that the semen might, in my patient, have passed through the bladder into the uterus. But I should mention that Jobert alludes to a report that pregnancy had taken place in one instance where he had closed the os uteri for a vesico-uterine fistula in the same way that I did in the case I have related. Nothing authentic, however, is stated with respect to it.

The ingenuity which has been bestowed of late years in relieving these distressing and difficult cases is, in my opinion, worthy of the highest commendation, and I think both the profession and the public are largely indebted to the originators and perfectors of the improved operative methods now in use, amongst whom the name of the introducer of metallic sutures, Dr. Marion Sims, late of New York, but now practising in Paris, must always be pre-eminently deserving of mention.

These operations, however, by which the os uteri is turned into the bladder, and equally those by which the os uteri is closed up, have been more than once made the subject of unfavourable criticism, on the ground that we are not justified in thus rendering a woman permanently sterile. The question may admit of a difference of opinion, according to the point of view from which it is regarded, and I grant that if relief could be afforded in any other way equally effectual, and not attended with serious danger, they would be justly worthy of commendation; but at the same time I for one have no sympathy with the sentiment which would condemn an unfortunate woman to remain in a condition which renders her loathsome and disgusting to herself, to her husband, and to all around her, merely that she may not be debarred from the chance of performing her share in increasing the population. The room which she inhabits, it must be remembered, will smell like a street urinal, and the bed which her husband is supposed to share with her will be in a like uninviting condition. These surroundings, I fear, will not much encourage the procreation of children, but will be much more likely to breed domestic disagreement than anything else; at all events, to my mind, the chance of increase obtained by allowing such patients to go unrelieved is much too dearly bought at the price of the constant misery which it compels them to suffer.—*Lancet*, Feb. 20, 1864, p. 207.

98.—ON VESICO-VAGINAL FISTULA.

By GEORGE POLLOCK, Esq., Surgeon to St. George's Hospital.

[Before undertaking an operation for vesico-vaginal fistula, it must be considered whether the state of health of the patient is good, so as to ensure the best prospect of healing—if this is not the case it may be better to defer the operation. The catamenial period must have passed over a day or two previous to the time the operation is performed; the mucous membrane of the vagina must be in a healthy condition, and the bowels must be freely acted on the night before the operation, and the rectum washed out with tepid water an hour or two before.]

As regards the operation itself the following observations may be useful:—The most simple and efficient speculum to expose the fistula is Bozeman's; with it the rectal surface of the vagina can be most efficiently depressed, and ample space secured in the cavity of the vagina for the necessary manipulation of the instruments and introduction of sutures. The position of that for the operation of lithotomy is most convenient when chloroform is administered; but if the patient does not choose to be placed under its influence, she had better be made to rest on the elbows and knees; the fistula is most readily reached in this posture. In paring the edges of the fistula, it is most essential that the mucous membrane of the vagina should alone be removed to the extreme margin of the opening, and that the walls of the bladder be left untouched by the knife; so that, although the opening in the vaginal wall is enlarged when the edges are pared, the opening in the vesical wall is no larger than previous to the operation. The sutures should be of metal, passed on needles perforated through the shaft, so that the needle, with the suture lying partly hid in it, is first passed, and the suture subsequently pushed on through it. The texture of the suture may be silver, or iron wire silvered, or iron wire alone. The second is preferable, being cheaper than silver, and not liable to rust like the last. When the sutures are secured by a double twist, the ends should be cut off quite close to this point. The vagina should be wiped out quite dry, so that all clots and urine be removed from the cavity, and nothing left to decompose or cause irritation of the parts; and on no account should any dressing be applied to the surface of the wound. The vagina should be left free and empty.

After the operation is complete, a male gum catheter should be introduced; to the catheter a short india-rubber tube may be attached, with a small flat india-rubber bottle at the further end; or a long india-rubber tube may be attached, so that the free extremity may reach over the side of the bed into some utensil there placed to catch the escaping urine. If the long tube be used, it should be tied to the bedside, so that it shall not drag on the catheter or pull it out of the urethra. The patient should lie on the side; but occasionally this is so irksome that she must be turned, so as to lie on her back. The catheter should be daily removed, washed, and replaced; a new one to be substituted every third or fourth day. Opium should be given daily in sufficient doses to keep the bowels quiet for ten days; after that an enema may be given to empty the rectum. After the action of the bowels the use of the catheter may be discontinued. The diet must be simple and rather spare until the bowels have been allowed to act. The wound should not be disturbed or examined for a fortnight; for it is well proved that the presence of metallic sutures produces no irritation if allowed to remain a month or more in the vagina after an operation for vesico-vaginal fistula.—*Lancet*, Feb. 6, 1864, p. 154.

99.—ON THE SURGICAL TREATMENT OF FIBROUS TUMOURS OF THE UTERUS.

By I. BAKER BROWN, Esq., Senior Surgeon to the London Surgical Home.

[This paper was read before the Obstetrical Society of London. On two previous occasions Mr. Brown has read papers on the same subject founded on seven cases treated by him. One of these will be found in the *Retro-spect* for Jan. to June, 1861, p. 242.]

The object of the present paper was to conform the practice previously advocated, by fourteen more cases, and at the same time to show that in most cases a very modified surgical treatment was sufficient; whereas Mr. Brown has hitherto divided his operation into two parts—viz., first, preliminary incision of the os and cervix, and, secondly, gouging or breaking up the tumour,—he now finds that the first step will always arrest the hemorrhage and the development of the tumour. In some cases the tumour decreases, and when small it will entirely disappear, more especially if of recent origin; and even when gouging is required, a much slighter operation is sufficient. Mr. Brown, therefore, now never uses "Harper's instrument," but only a pair of long-handled, blunt-pointed, curved scissors. The author entered minutely into the mode of operating, and laid great stress on carefully and thoroughly plugging the incisions and whole vagina with oiled lint after the operation, as on this point depended the chances of hemorrhage, and exposure to the air, and consequent hysteritis, and even peritonitis. Mr. Brown then read fourteen cases, occurring in the London Surgical Home, illustrative of his remarks. Of these fourteen, ten were cured of the hemorrhage by the incision of the os and cervix uteri alone, and one was relieved; in two only was it necessary to perform the second operation, both resulting in cure of the tumour; in six cases the tumour had either entirely disappeared or materially decreased after incision alone. Of the three deaths, one had occurred from peritonitis, resulting from exposure to cold and the restlessness of the patient; one from organic disease independent of the operation; and one from pyæmia. Out of between twenty and thirty cases occurring in his private practice, the author stated that he had had one death, in a patient whose case was complicated with hematocele, and that in his public practice he had had as many more as were now given with no more deaths.

The following practical conclusions were drawn:—

1. That the facts of the curability of these tumours is materially confirmed by these cases.
2. That it is not necessary in many cases to do more than incise the os and cervix, thereby much lessening the danger of the operation.
3. That the hemorrhage is almost invariably arrested by the incision of the os and cervix.
4. That the cure of these fibrous or fibroid tumours by surgical means, without the danger of enucleation, is now firmly established, as proved by Dr. M'Clintock, Dr. Routh, Dr. Dawson of Newcastle-on-Tyne, as well as by himself (Mr. Brown).

Dr. GERVIS wished to know from Mr. Brown whether the incisions he made in the sides of the cervix uteri were ever apt to reunite; whether, if they did, the hemorrhage recurred; and whether, if they did not, the incised condition of the cervix, in a patient who subsequently became pregnant, in any way interfered with normal parturition.

Dr. ROUTH considered the paper as evidence of the advance of medical science with respect to a disease many cases of which had been deemed incurable. He alluded to the process of enucleation recommended by Dr. Atlee, which he (Dr. Routh) regarded as too hazardous. It was known that many cases had ended fatally under the treatment, and he regretted they had not been published. Mr. Brown, however, had acted more nobly in publishing both his successful and unsuccessful cases. Dr. Routh considered *fibroid* tumours required different treatment according to whether they were in or out of the cavity of the pelvis, whether the heart and lungs were

pressed upon, or micturition impeded, or whether in either case excessive floodings occurred. In any case the tumour should not be meddled with unless vital functions were interfered with. Mr. Brown's operation could not be used in supra-pelvic cases because of the uncertainty of position and risk of wounding the peritoneum. In such cases he considered gastrotomy the best treatment, removing both ovaries also. In the pelvic fibroids, he agreed with the author that the tumours after bisection diminished, and he considered this an established point in practice. The opening of the cervix he believed not only checked the hemorrhage, but enabled the tumour to be more easily got at; it was, under the restrictions laid down by Mr. Brown, quite safe.

Dr. GREENHALGH considered the question of fibroid or fibrous tumours one of great importance, especially where the hemorrhage endangered the life of the patient. In the great majority of cases he had found the best results from the use of bichloride of mercury or bromide of potassium. Still there was a certain limited class of cases in which medicines were of little avail, and it was in such that the division of the cervix uteri was attended with benefit. He had seen a few cases, and in these, although the hemorrhage was considerably lessened, yet the size of the uterus was not much reduced. In those cases where pressure on surrounding structures had produced injurious effects, he had seen good results from pushing up the tumour above the brim.

Mr. BROWN, in reply to Dr. Gervis, stated that care was taken to prevent the incisions in the os and cervix from uniting. The oiled lint, in the first instance, and the injections afterwards, generally prevented union; but if any bands of lymph were thrown out, he always broke them down with the finger. He had never seen a case in which the patient had been confined after the operation, but it was only reasonable to infer that parturition would be accelerated after these incisions; for in the case of a primiparous woman, where the os is torn, the subsequent labours are always exceedingly quick. As to the rationale of the operation, Mr. Brown had avoided the question for fear of giving too wide a field for discussion. He thought the action was twofold. The tumours were of very low vitality, and the slightest interference with them stopped their growth. Thus, in the first place, the initiatory bloodvessels were cut through by incising the os and cervix; and secondly, the tumour was grasped more firmly by the contraction of the uterus, which always takes place after the os is incised; and thus the tumour was confined, could not grow, and often died. He was obliged to Dr. Routh for alluding to the authenticity of his (Mr. Brown's) cases, as some doubt had on more than one occasion been thrown on the subject. He could only repeat that his practice at the London Surgical Home was open to every member of the profession. He had only given cases where severe hemorrhage was present as the most urgent symptom, and in almost all the cases which came to him the patients had been previously treated without success. —*Lancet*, March 26, 1864, p. 332.

100.—REMOVAL OF A FIBROUS TUMOUR FROM THE UTERUS.

By Dr. MICHAEL T. SADLER, Barnsley, Yorkshire.

[The patient was about forty years of age, and had had no children. Uterine symptoms existed for about a year and a half before a vaginal examination was made by Dr. Sadler.]

I diagnosed a fibrous tumour or polypus within the cavity of the uterus, as yet inaccessible. Occasional doses of ergot were given at intervals, with the hope of dilating the os, but for some time without much effect. The appetite, which had hitherto been good, began to fail, whilst the pain and discharge increased, frequently being so severe as to cause fainting. The patient's strength and spirits began to fail seriously, and I feared that it would become necessary to dilate the os uteri by sponge-tents, or other means.

On July 4, however, when Mr. Teale, of Leeds, saw the case with me, the os began, for the first time, to show signs of yielding to the internal pressure, and continuance of the same plan of treatment was advised.

On July 12 the pain was unusually violent, and, on examination, I found the os distinctly dilating, and could reach the tumour within it. On the 15th, the pains continuing very severe, the tumour began to descend into the vagina, and by 8 a. m., on the 16th, it had got so low as to press on the urethra and prevent micturition. As it now seemed fairly within reach, and the patient was suffering extremely, I determined to attempt to remove it. I accordingly emptied the bladder, put the patient under the influence of chloroform, and, finding no kind of forceps of any use, on account of the yielding nature of the tumour, and the small proportion of it which was as yet extruded from the uterus, I passed my hand (not without considerable difficulty, the patient never having had a child) along side of the tumour into the uterus until I reached its base; then with my fingers separated it from its attachments—enucleated it, in fact, as there was no pedicle, and the rounded base of the tumour seemed to be imbedded in the substance of the uterus. This being done, the whole tumour came away without much more difficulty.

There was no hemorrhage of any consequence; but the patient was rather slow in recovering from the effects of the chloroform, and about twenty minutes after she had ceased to inhale it fell into a rather alarming state of syncope, in which respiration was with some difficulty maintained. By degrees, however, this passed off, but she long continued very sick and faint. From this time she gradually, though slowly recovered, regaining flesh much more rapidly than strength. She has just returned from a visit to Scarborough, looks almost as well as ever, but complains of slight pains in her back and legs. Menstruation is re-established, and is now attended with less pain than she has had for some years.

The tumour was egg-shaped, the smaller end having passed first through the os uteri. It was about ten inches long, and six or seven inches wide at the broadest part, and it weighed one pound two ounces avoirdupois. On section, it displayed an arcolated fibrous structure, with numerous large vessels. There is a figure in Cruveilhier's "*Anatomie Pathologique*," 13th livraison, planche 6, fig. 2, which gives an excellent idea of its appearance. The microscope showed nothing but fibrous tissue without any cells.—*Medical Times and Gazette*, Jan. 23, 1864, p. 88.

101.—THE SOURCE OF HEMORRHAGE IN A CASE OF FIBROUS TUMOUR OF THE UTERUS.

By Dr. J. MATTHEWS DUNCAN, F. R. S. E., Edinburgh.

[Dr. Duncan was led to notice the source of hemorrhage in this case by observing a small clot whose discoloured end, not more than half an inch in diameter, projected on the healthy, and to the naked eye, at first sight, apparently smooth and entire surface of the mucous membrane of the body of the uterus. The patient was very anæmic when first seen by Dr. Duncan. She died some little time after this, but her death was not preceded by any very copious hemorrhage.]

The uterus occupied the central region of the hypogastrium. Its upper margin was nearly on a level with the umbilicus. Its os was high in the pelvis. The cervix was hypertrophied, and measured by the extent of the arbor vitæ was elongated to a dimension of an inch and a half. A globular fibrous tumour, fully three inches in diameter, occupied the fundus uteri. It was moderately hard. Venous sinuses that would admit a small crowquill were seen permeating it in various directions. It projected downwards moderately into the deformed and expanded uterine cavity. It was everywhere surrounded by a covering of the proper tissue of the uterus, the layer between the tumour and peritoneum being more than twice as thick as that intervening between it and the mucous lining of the uterine cavity. The

thickness of the latter layer was an eighth of an inch. In this layer of uterine tissue, especially in the parts adjacent to the tumour, there was developed a reticulation of enormous uterine sinuses, such as are observed in the same part in pregnancy. These were largest above and below the tumour, and contracted in dimensions as they approached the side of the uterus, to emerge from it between the serous layers of the broad ligament. The uterine cavity was deformed and extended by the projection into it from above of the fibrous tumour. It contained a brownish mucus. Its mucous surface was pale, smooth, and healthy, and to a casual observer presented nothing but a little clot about the centre of the part projected by the underlying tumour. On inspecting this clot with a glass it was found to be protruded through a small round opening which it did not nearly fill. The opening was one-twelfth of an inch in diameter, and resembled somewhat the opening of a venous sinus exposed by separation of the placenta. A probe could be easily passed through it into the uterine sinuses already mentioned. The clot was about two lines in length, and projected from an empty flat uterine sinus.

The source of the bleeding in cases of polypus and of menorrhagia, or metrorrhagia of all kinds, is variously described according to the theoretical views of the author accounting for it. In this case it would be equally unsatisfactory and unphilosophical to seek in such theories an explanation of the hemorrhage. An evident and sufficient source is found in the large opening of a uterine sinus upon the surface of the uterine cavity. At first sight this source of hemorrhage is more formidable than it really is, for the sinuses, though enormous potentially, have in ordinary circumstances very little real capacity, on account of their flat walls being almost if not altogether in proximity. It was only during the monthly congestion of the genital organs that blood found its way along the open sinus, and oozed out into the uterine cavity. At other times the sinuses were empty; or, if only nearly empty, oozing from them might be arrested by a little blood-plug in the orifice. Whether such an obstructing blood clot were present or not, increased impetus of the blood from any cause, or congestion induced by the erect position, or by one or more of many other causes, might re-establish the oozing and the metrorrhagia or menorrhagia.

On this case many important discussions might be founded; I shall only now suggest that the projection of the tumour into the uterine cavity may have led to the opening being formed where it was found, and that similar relations in other cases may explain the tendency to hemorrhage when the tumour does so project or become polypoid, and *vice versa*. Further, the case appears to me to indicate the value of those hæmostatic measures which diminish the impetus of the blood, or moderate congestion in the pelvic viscera. Again, the source of bleeding, being in flat easily compressed venous vessels, leads to great value being placed on means that may restrain the hemorrhage by compression, however this may be applied, whether from above, or by plugging from below, or by stimulation of uterine contraction by oxytocic medicines. The good results, if any, of incising the projecting parts of such tumours may also be explained by the closure of some of the sinuses produced by the healing up of such incisions.

In the case just related, the hemorrhages and the anæmia were much greater than are observed to result from losses in consequence of lesions of the papillary vascular loops in abrasions or ulcerations of the cervix, or from simple menorrhagia flowing from the larger venous vessels of the hypertrophied mucous membrane of the body of the uterus; and the source of the bleeding had a physical preponderance quite corresponding to these circumstances.—*Edinburgh Medical Journal*, Jan. 1864, p. 627.

102.—ON PROLAPSUS OF THE UTERUS, BLADDER, AND RECTUM.

By I. BAKER BROWN, Esq., F. R. C. S.

[Mr. Brown divides ruptured perineum into cases in which a slight rent only has occurred, say of half an inch, those in which the laceration has extended to the anus, and those in which the sphincter has been torn through; this last may be called complete rupture.]

The effects of rupture of the perineum differ according to the degree of lesion. If there be partial rupture, a more extended os vaginæ, laxity of the base of the vagina, and more or less prolapsus of the walls of the passage, are consequences. If the lesion involve the whole of the perineum, the recto-vaginal septum prolapses from want of the support afforded by the parts in their normal state; and, the resistance of the vagina being thus diminished, the uterus prolapses also. At times the posterior wall of the vagina, gradually falling down, forms a pouch, in which the fæces accumulate, and the patient is never able to evacuate the intestines without pressing upon the prolapsed part, and aiding the action of the bowel with her fingers. This form of prolapse is known as vaginal rectocele. Or the anterior wall of the vagina may prolapse, the base of the bladder falling with it, constituting what is known as vaginal cystocele.

I will proceed to state in detail the operation for ruptured perineum. Assume the rupture to be complete. The patient is placed, with or without chloroform (better with), in the lithotomy position. The legs are held by assistants, or they are strapped together to the hands and knees. An assistant stands on each side, and holds back the parts adjacent to the rupture; not putting the fingers on the mucous membrane, but just short of it, so as to make the parts tense. Then the operator, taking a long straight knife—blade and handle both long, the latter a little roughened on the back,—and holding it in the ordinary way, places the left forefinger on the mucous membrane, and marks out exactly the incision he is about to make. Upon the care and accuracy with which this part of the operation is performed much of the facility of operating depends. Then, laying hold of the mucous membrane with forceps, the mucous membrane of the bowel is bared by careful dissection, but not cut through. Any portions of skin, or cicatrised bands—Nature's attempts at union—which may be found in the injured parts must be removed. An operator who is ambidextrous has great advantages in performing this operation. The need of marking out the lines of incision at the first step of the operation arises from the bleeding which occurs, and which greatly obscures the parts. Unless there were some guide, the operator would not be able so readily to know the extent to which he has dissected, and he might become confused. The hemorrhage is generally considerable in these cases. Formerly it was considered necessary to stop the operation in order to tie vessels. Do nothing of the sort. The bleeding must be extremely severe to justify stopping for a moment. The best course is always to go on steadily and quickly with the operation.

In inserting the ligatures I use a much longer needle than the one commonly had recourse to. With this needle a much greater sweep can be made. The needle is armed with ordinary twine or waxed Indian hemp. Taking a firm grasp of the instrument, the point is introduced about an inch from the incisions which have been made, and then it is pushed deeply down into the tissues as nearly as possible in the direction of the centre line. Introduce the needle as closely as practicable to the mucous membrane of the vagina, and having got the instrument in this position, dip it deep into the tissues again, and bring it out on the opposite side at a point corresponding to the point of introduction. The long needle, it will be seen, enables the operator to effect with one stitch what usually requires two stitches. The needle having been passed, the loop of the ligature is seized with forceps and the instrument withdrawn. On passing the second ligature, care must be exercised not to pass it through the mucous membrane. The needle must not be

pushed so deeply, else mucous membrane will be brought against mucous membrane, and there will not be perfect union. A like course must be pursued to that which I described in my lecture on ovariectomy. The needle in the one case must be brought to the extreme edge of the cut surface, avoiding the mucous membrane; in the other, it must be directed in a similar manner, avoiding the peritoneum. If the cut surfaces are brought into exact apposition, hemorrhage will stop, and there will not arise any further trouble from it.

The next step of the operation is to slip two pieces of bougie, called quills, under the loops of the ligatures, and fasten with a double twist—the surgical knot. In this way the two raw surfaces will be brought exactly together. The ligature nearest the anus should be tied first. Too great care cannot be taken to secure the accurate apposition of the parts. The second ligature having been tied, the operation is completed by two or three ordinary interrupted wire sutures, deeply dipped into each lip of the wound.

What I have now described applies to the primary operation—the operation for the ruptured perineum—in ordinary prolapsus of the bladder, or cystocele; prolapsus of the rectum, or rectocele; and prolapsus uteri. But if the sphincter ani be torn, so that half of it is lost, a different proceeding is necessary. The body of the sphincter is double, and attached to the coccyx by a tendinous insertion. The muscle embraces the anus. The anatomical structure of the sphincter renders necessary the step I am about to mention. Before bringing the cut edges together I divide the superficial fibres of the muscles on each side. If this be not done, the contraction of the sphincter, easily excited, will strain injuriously upon the apposed parts, and a recto-vaginal fistula may be the consequence.

In the first operation I performed for complete rupture of the perineum, I did not recognise the necessity of dividing the sphincter on both sides, but divided it on one side only. It happened that I had not the aid of skilled nurses in this case, and I was so interested in its progress that I nursed the patient myself, sitting up with her eleven successive nights. I was thus enabled to watch very narrowly the progress of the case, and I found on sponging the reunited parts, that while the half of the sphincter ani which had been divided did not retract, the undivided half retracted strongly when touched. After noticing this occurrence for four or five days, on placing a finger into the vagina, I felt that the reunited surfaces were giving way. On discovering this I immediately divided the untouched half of the sphincter, and so prevented further traction on the united surfaces. I happened to mention the subject to Sir B. Brodie, remarking that the operation would probably never succeed unless the sphincter were divided; upon which he said, "You must recollect that the sphincter is double." I at once saw the truth of this statement. I had not before rightly apprehended the lesson to be derived from the operation just related. From that time I have always divided both bellies of the muscle. The result is that the parts are perfectly passive while the patient is under treatment. Let me caution you not to examine the reunited parts for at least ten days after the operation. The effects may be most mischievous. I have known the introduction of the finger into the vagina to prevent complete union. Having brought the parts together, let them alone; do not be too anxious to see the result; have patience, and faith in your own work.

In the operation for ruptured perineum, as in all operations of a plastic nature, before attempting to operate great care should be exercised in selecting the assistants and in defining the precise work each has to do. If this is not done the operation will not proceed satisfactorily. The operation used to occupy a long time. I was frequently an hour, and I recently heard of a case in a London hospital that occupied two hours. I seldom now require more than a quarter of an hour or twenty minutes, because I am assisted by gentlemen who know every step to be taken: so that I have not simply one pair of hands, but three or four working in unison, and with the regularity of clockwork.

No less than 30 cases of complete rupture of the perineum have been

treated in the Home in the last five years. In the same period also 33 incomplete cases, with more or less prolapsus of the uterus, were treated, and in addition six cases of vaginal rectocele. Altogether 69 cases of the lesions under consideration have, within the period named, been treated in the Home. Of these cases no less than 61 have been absolutely cured. I may add that my experience in these cases, at St. Mary's Hospital, at the Home, and in private practice, extends to upwards of 500 instances. I might multiply cases treated in the Home, and illustrating the happy results following the operation for ruptured perineum and prolapsus which I have described; but I prefer to direct attention to certain points on which the successful treatment of the lesion largely depends.

The question is often asked, Will a woman who has once had the perineum restored by operation again bear children without a re-rupture? I answer that, with few exceptions, she will. In the very first case I treated in practice—the case which I detailed a few moments ago, and which I sat up with eleven nights—the patient was delivered by myself, three years afterwards, in the presence of Sir Charles Locock; and although the child weighed 12½ lbs., the delivery was effected with merely a slight lateral tear. The perineum, indeed, was not injured, and the patient never lost the use of the sphincter, which she had not had for fifteen years before the operation.

It is not at all necessary that the operation for ruptured perineum should be deferred, as recommended by some gentlemen, until after childbearing, from fear of a second rupture. Indeed, it is to be borne in mind that, if a second rupture does occur, the torn parts can always be brought at once together, and successfully united, by the ordinary quill or silver wire suture. The propriety of operating immediately after the lesion has, however, been questioned. I believe, and strenuously urge, that the operation should be performed while the parts are raw. At that time they will unite in two or three days. The objection urged to this course on account of the local discharge is futile, for if the edges of the ruptured part are properly brought together they can suffer no injury from that source. At all events, in my own experience, and in the experience of my friend Mr. Harper, who has several times gone for me to urgent cases around London, where the operation has been performed immediately, in no one instance have we seen any evil consequences.

Another question which arises for consideration is this, Can a woman go on suckling with so severe an operation? Will not the secretion of milk be interfered with? My answer, founded on the experience of several cases, is, that the operation does not at all interfere with the milk after the first six hours. Chloroform seems to retard the secretion for a few hours, but the breasts recover their functions very rapidly.

It is necessary that I should now speak of the treatment to be pursued after the operation for ruptured perineum, and the different prolapses arising from this lesion. The first step to be taken is to lock up the bowels by opium, given in grain doses at intervals of six hours. The next step is to support the patient by a generous diet of wine, beef tea, and animal nourishment. Often a bottle or two bottles of wine may be required daily for the first eight or ten days, and even two or three weeks. Have no fear of the bowels becoming loaded and the patient feverish under such a diet. It never affects a patient otherwise than beneficially. The operation has frequently failed from opium and a generous diet having been withheld. On the tenth day it is well to clear the bowels by giving first a dose of castor oil, and subsequently administering frequent soft water injections, to which a little soap has been added.

The use of laxatives immediately after the operation has been advocated, and their repetition so as to cause the bowels to act every day. When there is incomplete rupture of the perineum no harm may follow this practice; but when the rupture is complete, too early and frequent action of the bowels will prevent perfect union of the newly-united surfaces in nine out of every ten cases. A caution is necessary in the administration of opium. The drug must be given with great wariness when the patient is suckling. The child

should not be put to the breast for three or four hours after a dose has been taken, or it may be poisoned. I adopt this plan, and do not permit the child to be put to the breast more than three times in the twenty-four hours.

Occasionally phlebitis occurs after the operation. When this happens, hot fomentations and gentle bandaging of the leg and thigh will be the best treatment. I have not seen death ensue from simple phlebitis, but phlebitis may lead to pyæmia. In three out of four cases of phlebitis coming under my own observation, I ascertained that the patients had been in the habit of taking large quantities of opium for several years, in order to keep the bowels costive, and diminish the inconvenience arising from a torn sphincter. In a bad case of ruptured perineum a patient is never safe unless she wears a napkin; for whenever the bowels act, they act instantly. I now make it a rule to ask the patient, before operating, if she has been in the habit of taking opium. If she has, and the skin is hard and dry, and continues so in spite of warm baths and frictions, I extend the period of preparatory treatment from a week or two to one, two, or three months. The skin is not the only organ which suffers from the opium; the patient, as a rule, is predisposed to pyæmia. During the preparatory treatment the patient must, of course, abstain from opium.

Of the cases of ruptured perineum treated in the Home but one has ended fatally. Three patients have been lost after the operation from prolapse of the uterus. The cause of death in each case was pyæmia.—*Lancet*, May, 14, 1864, p. 543.

103.—ON THE OPERATIVE AND MECHANICAL TREATMENT OF PROLAPSUS UTERI.

By REDFERN DAVIES, Esq., Surgeon to the Children's Hospital, Birmingham.

[The object of this paper is to show that the effect of the operation now resorted to for the cure of prolapsus uteri is usually permanent, and that the parts subsequently admit of child-bearing. Speaking of the case of a young woman upon whom Mr. Davies operated, and who was subsequently delivered of a child, he observes:]

The general plan of the operation—the removal of mucous membrane from the lateral and posterior surfaces of the vagina, and the insertion of deep and superficial sutures—was conducted similarly to the method adopted by Mr. Baker Brown. But in the substance composing both these sutures, and where they are attached to, I differ entirely. Instead of twine sutures, I have always used silver wire, of a sufficient size that it may not cut the tissues, and freshly annealed that it may be of such pliancy as to be easily managed. The purpose of the deep sutures is to adapt the vivified surfaces to each other, so that they may unite by firm and immediate intention. Silver wire does this as well as twine, and at the same time is superior to it in not absorbing any of the secretions—freshly poured out or not,—so becoming of itself a local irritant or fetid stringy mass permeating tissues that are endeavouring to unite, and requiring besides to be removed on the second day, lest, as Mr. Baker Brown says, “further retention produce sloughing and suppuration.” The object aimed at will, I think, be more certainly attained by the employment of silver wire, since, from the harmlessness with which its presence is tolerated by the tissues, it does not require to be removed for ten days, thus allowing time for large surfaces to become united.

The utmost possible cleanliness being desirable about these parts, after making many trials of glass in various shapes, I now use on each side three glass rods of about one inch in length, having—as suggested to me by Mr. Blak—a central nick where the wire is to be attached; and, undeterred by any fear of damaging the supports of my fabric, or the fabric itself, I am able to refresh the patient each day by copiously syringing the parts. A further advantage to be derived from using pieces of glass rod is, that the pressure required is diffused more equably, and to where it is wanted.

The plentiful administration of opium to the patient is not so much for the purpose of securing rest, as to prevent action of the bowels; in order that there may be no disturbance, from the passage of a stool, of the parts around the pared edges whilst they are uniting. That such a disturbance—however slight it may be made to be—is certainly best to be avoided in the amount of union that will occur where the deep sutures remain but two days, can hardly be doubted; but then, if, as Mr. Baker Brown says, “the bowels are to be constipated for two or three weeks after the soft parts have united,” what is the use of “completely dividing the sphincter ani on both sides”?

The plan that I have adopted has been, immediately after the operation, when there are feelings of uneasiness and smarting, to administer one grain of opium, and induce sleep, so that the patient upon awaking may be refreshed, and only to repeat the opium in case of want of sleep. In one case, from first to last, there was no opium taken. On the third morning after operation I administer an enema of warm water, and to ensure the bowels being regularly opened, and that the stools may be soft and passed easily, one teaspoonful of milk of sulphur is taken by the mouth every evening. I divide the sphincter ani on both sides most completely, and subcutaneously if possible. The result of this treatment has been that the patient has passed her stools easily and almost unconsciously for a short time. The sphincter ani has regained its original power in a few weeks, while all the effects of a mild opium-poisoning are avoided. I should add that Mr. Blake, after many trials of these plans, both in the lying-in hospital and in private practice, fully, I believe, coincides in their efficacy.

Mr. Baker Brown, in the last edition of his work on the “Surgical Diseases of Women,” says—“Let all pessaries as mechanical supports to the uterus, whatever their form, be avoided.” That those pessaries which—as he says, *all* do—produce irritation, excoriation, and leucorrhœa, are incompatible with perfect cleanliness, or which stretch and tend to keep up relaxation of the canal, are to be avoided, few will deny. But “Zwanke’s pessary” causes none of these evils. It acts, so far as I can make out, by forming an artificial floor, upon which the uterus, when no longer suspended in the pelvis by the tonicity of its ligaments, may rest, being itself supported by the soft parts on the inside of the ischium, more especially by the levator ani.

In one case—not included in the before-mentioned six—the uterus shortly after operation was felt to be high up in the pelvis, and only just within reach of the tip of the finger; but upon the patient resuming her usual household duties it gradually descended, until it was found to rest upon the perineum, when, fearing a similar result to what had occurred after two operations in another institution, I applied a “Zwanke’s pessary,” and with the most perfect success.

In a case upon which I recently operated, not being satisfied with the amount of union that had taken place, I made use of a triangular piece of wood, fashioned according to the surface of the parts, and having a broad slit extending one third of its length down the middle, that it might embrace and press upon the perineum on each side of the labia, and suspended it by slightly elastic straps, to a belt fitting round the hips. After wearing this for four months, I now find the uterus to be in its natural site, a fair perineum, and all the previous uterine symptoms gone. She states that at the end of a day’s work, without this compress, she feels a “weakness,” but nothing more, about the lower part of the abdomen, and that the way in which it seemed from her sensations to act was “by pressing the parts together, and to support them when they had to withstand unusual pressure, as in lifting.”

A case occurred some years ago in which I attempted to *almost* occlude the vagina. The patient, aged thirty-six, the mother of nine children,—the eldest twenty-one and the youngest nine years,—had had prolapsus uteri, gradually increasing in the degree of pain and discomfort it occasioned, since the birth of her second child, so that when she came under my care at the Birmingham Workhouse Infirmary in May, 1861, she complained that

life was a burden to her, and was willing to submit to anything that offered some chance of relief. Menstruation not having ceased, I was obliged to provide for its escape by leaving a strip of mucous membrane in the lower or posterior part of the vagina, whose lateral walls were denuded of their covering as high up as the meatus urinarius, and as far back as I could get—I should say about two inches. The result of the operation is that the uterus can be felt by a bougie resting upon a thick cushion—of about an inch in depth—formed from the union of the lateral walls of the vagina, through which there is a small passage allowing the menstrual flow, and that her ailments due to the prolapsus uteri have entirely ceased.—*Lancet*, April 9, 1864, p. 407.

104.—ON THE TREATMENT OF IRRITABLE UTERUS BY BROMIDE OF AMMONIUM.

By Dr. G. DE GORREQUEZ GRIFFITH, Dublin.

[After describing the local treatment adopted by him, the writer passes on to the general mode of treatment which he employs.]

Rest of mind, and of the body in the horizontal, supine, and *prone* positions alternately; regulation of the diet, according to the condition and habit of the patient; proper daily discharge of the alvine function, by the use of no more powerful drug than castor oil; and the administration of the bromide of ammonium in doses varying from grs. x to xx. (or even more should it be requisite), repeated every fourth hour; should we, however, wish to stop the matritic discharge altogether and quickly, we may use this medicine in the following way; for the first dose we might prescribe ℥j.—℥ij., or 3j., to be followed every hour or every two hours by grs. x. to xx. I am now alluding to a case where hemorrhage from the uterus, in the form of menorrhagia or metrorrhagia, is the urgent symptom; in those instances, however, in which pain is the predominant cause of suffering, I make use of the same drug in quantities varying from grs. x. to xx., or even in larger doses, given as there may seem occasion every one, two, or three hours. If the pain assume the paroxysmal character, I have no hesitation in prescribing 3j., to be taken at the very onset of the paroxysm; and if there be a tendency to periodicity, I order 3ss. (sometimes ℥j. will suffice) to be taken about a quarter of an hour or ten minutes before the return is expected; the medicine, after this anticipatory dose, to be continued steadily in quantities of grs. x. every third or fourth hour till the pain be eased, when there may be allowed a longer interval, the quantity of the medicine ordered not being subjected to any diminution. The effect in allaying or removing pain, in checking, or altogether causing to cease, any uterine hemorrhage, is sometimes magical.

I have not yet arrived at any definite conclusions as to the manner in which the bromide behaves itself, so as to have the effect of an anodyne at one time, and of a hæmostatic at another, or at the same time of use, to combine the action of both these classes of remedies; I only know, as an incontrovertible fact, that such felicitous results will be found to obtain. If, however, I might be allowed to express an opinion, I would venture to suggest that, in the cases of pain, this drug may work its effects by acting *directly* upon the nerves of the uterus, or indirectly through the great nervous centres, with which they are connected, altering and regulating deranged action, while at the same time restoring or tending to restore the affected parts to their wonted healthy condition. As a hæmostatic, its action, I apprehend, is otherwise than that which we have just described, and may consist in the stimulating of the uterine muscular fibres to contract, and by so doing to constrict the vessels, or in the immediate influence exerted upon the vessels themselves, whereby their tone is restored, the capability of answering stimuli regained, and the power of healthily diminishing their calibre reinstated, the laxity of their walls superseded by normal vigour and tension, so that there cannot occur exudation.

There are other diseased conditions in which, with as decided advantage, we may employ the bromide of ammonium, and of which, on some future occasion, I propose to lay the facts before the profession; they are, menorrhagia, metrorrhagia, in the latter of which are comprehended all forms of uterine hemorrhages, whether from lesions of the uterus itself, from ovarian irritation, excitation, inflammation, or any of the various diseased or deranged actions peculiar to the ovaries or adjoining parts and viscera; amenorrhœa, dysmenorrhœa, renal derangement or disease, the same condition of the uterus, of the bladder, and of the urethra; in chronic bronchitis, also, I have employed this agent, to the great alleviation of the patient's distress.

The uterine and ovarian affections, for which the bromide is indicated, are many and various, and shall be hereafter enumerated; the vesical abnormal states are cystitis of the acute and chronic forms; mere irritation; stone; paralysis (which it will likewise occasion), and hematuria.

Reasoning from analogy, I should hope, though I have never administered it, that this medicine would prove powerfully efficacious in hæmoptysis, perhaps, also in hæmatemesis, if not indeed in *all* forms of hemorrhages; neither have I yet tried it, as a topical external application, in the arrest of external bleeding, but I see no contra-indication to, while I see every reason to adopt, its use.

I never give a smaller quantity than grs. x. for a dose, and in certain vesical or renal complaints, I sometimes combine it with kali nitratis, to determine it the more to the kidneys, or to hasten it to the bladder, whither it is still further accelerated, by insisting upon the patient taking large draughts of some bland and mucilaginous fluids, such as flax-seed, oatmeal, or barley-tea, or a strong solution of gum Arabic.

I have found this drug also very useful in obstinate cases of phosphatic urinous deposit!

May it not in post-partum hemorrhage likewise prove as powerful a styptic as in those cases to which I have made reference in the foregoing part of this paper?

In so many uterine and ovarian affections will this drug be found beneficial, as almost to justify the attaching to it of the name utero-ovarian specific!

In conclusion, I would state, that the profession is largely indebted to Dr. Gibb for the very valuable medicine which he has placed at its disposal; but, that on the part of the public, there is due to him a very much larger debt of gratitude for his having brought forward and established in use an agent so decidedly remedial in the various forms of disease.—*Medical Circular*, Dec. 30, 1863, p. 372.

105.—EXTRACTION OF A HAIR-PIN FROM THE URINARY BLADDER OF A FEMALE.

By G. H. PORTER, Esq., Surgeon to the Meath Hospital.

Many interesting cases of removal of hair-pins from the bladder of females, have been from time to time recorded, accompanied with practical hints for the mode of relieving the sufferers from those foreign bodies. Among the most remarkable may be mentioned those which occurred in the practice of Mr. Syme, Mr. Hilton, and Dr. Tabuteau. The following remarks will, I trust, be read with interest, as pointing out an easy and efficient method, and as illustrating a fact already known, viz., that the urethra of the female is capable of being dilated to a very great extent, without subsequent injury to the canal.

J. N., aged twenty, unmarried, admitted into the Meath Hospital, March 24th, 1861, stated that she had, five days previously, pushed the rounded extremity of a hair-pin up the urethra, and, as it slipped from her fingers, she was unable to withdraw it again. She did not suffer much prior to her admission, merely feeling a slight smarting after passing water. On the following morning I introduced a silver female catheter into the bladder, and *drew off* about two and a half ounces of turbid urine. Previous to, and after

emptying the viscus, I could distinctly feel the instrument strike against a hard body. I immediately withdrew the catheter, and having had her placed under the full influence of chloroform, and put in the position for lithotomy, passed in a slightly curved narrow-bladed forceps, but without effect. I then used a long probe hooked at one end, and sought to entangle it in the bent part of the pin, but in this also I was disappointed. The pin could be felt lying across the neck of the bladder, the points being directed to the right side, but I was unable by any manœuvre to dislodge it. I then decided upon dilating the canal, and on the 26th March, placed a tent of prepared sponge, about two inches in length, in the urethra, and desired the re-sident pupil to allow it to remain there until the first demand to pass water, and to replace it with another fresh one during the day, after each act of micturition. This plan was steadily persevered in for two days; but on the morning of the 29th March, she refused to permit the introduction of another sponge, as she was suffering great pain in the region of the bladder, had frequent desire to empty it, and tenesmus. The urine was opaque, and tinged with blood, and I ordered a warm bath, an opiate enema, and the following mixture:—Carbonate of potash, one drachm; tincture of hyoscyamus, two drachms; syrup of poppies, three drachms; and camphor tincture to eight ounces. Two table-spoonfuls to be taken every second hour.

I directed that the tent should not be re-introduced until evening, and, not even then, unless the pain had been relieved. The patient felt so comfortable towards night that the sponge was again applied, and remained five hours in its position.

30th March, I found, on examination, that I could without much difficulty gradually introduce the index finger of my left hand fairly into the bladder. By this means I was enabled to touch the hair-pin very palpably; and, having done so, tried to disengage it. In this I was successful, and brought it on so as to feel one of the points. I now guided a narrow-bladed forceps along my fingers into the bladder, and, after the lapse of a few moments, seized it. The second point was easily found; and fixing it firmly against the top of my finger in the viscus, I withdrew the hair-pin thus grasped. It was considerably coated with phosphatic deposit, although it was such a short time in the bladder, showing how very quickly any foreign substance affords a nucleus for the formation of a calculus. The girl was now placed in bed, and ordered an opiate draught, resulting in a tranquil day, when she had perfect control over the act of micturition. She left the hospital five days afterwards quite well, maintaining complete command over the action of the bladder.

Numerous excellent methods have been used for removing hair-pins from the situation indicated, and ingenious instruments have been invented for the purpose; but I consider they are not requisite, as after a gradual but free dilatation, in the manner described, sufficient access is found for the finger (by which you can easily feel what you are doing) and a pair of forceps is the only instrument, in my opinion, necessary. In Mr. Hilton's case, reported in the *Lancet* of February 23th, 1863, he dilated the urethra by passing in his little finger, and subsequently the forefinger, and withdrew the pin by means of a blunt hook. He also speaks of an "eyed instrument" to slip over one of the points, if it presents itself, and thus glide to the curved part. I cannot, however, conceive this manœuvre easier than seizing the prong with a forceps, hitching the second extremity on the top of the finger in the bladder, and withdrawing altogether. I am of opinion that such rapid distension of the passage is not prudent, and I consider it likely to be followed by want of control over the organ for a longer or shorter period. Mr. Syme speaks highly of a combination of dilatation and cutting for obtaining access to the bladder; and in his case produced the former effect by bougies, and the latter by a very slight incision of its neck, by means of a narrow straight bistoury. He then removed the foreign body with a hook. He acknowledges that dilatation "if carried beyond a certain degree, is apt to produce that suppurative inflammation, which in this situation so surely proves fatal." I agree entirely with this statement, and hold

that the hasty enlargement (by which I understand the canal being dilated *immediately* before the extraction of any foreign substance) is far more likely to be followed by a want of power at the neck of the viscus, or by the dangerous inflammation alluded to. The late Sir B. Brodie was also in favour of *gradual* dilatation, when it is required to enlarge the female urethra; and with respect to the mode of doing so with the sponge tent, recommends that it should be "made by compressing a piece of wet sponge between two pieces of board, in a vice, or under a very heavy weight, and not that prepared by wax." Those I used were prepared in the latter manner, and I cannot imagine why he objected to it, as they were most efficient in every respect.—*Dublin Quarterly Journal*, Nov. 1863, p. 270.

106.—ON HYSTERIA.

By FREDERIC C. SKEY, Esq., President of the Royal College of Surgeons, and Surgeon to St. Bartholomew's Hospital.

I know no class of diseases that more thoroughly demands the recognition of surgeons than that known under the title of hysteric or local nervous disease. So thoroughly has the medical mind been imbued with the doctrine of inflammation that almost every variety of pain, every appearance of congested vessels, is stamped as the product, or the concomitant, of inflammatory action. The indispensable companionship of *pain, heat, redness, and swelling* is entirely ignored, and passive congestion—producing redness alone, minus pain, minus heat, and minus swelling—stands alone to claim the title due only to the sum of all. How often, in the practice of many surgeons, does not simple congestion of vessels obtain for itself, not the title merely, but the reality of treatment of true inflammation! And not less striking is the similar error as applied to *pain*. Pain is a disease *per se*. It stands alone, unaccompanied either by heat, redness, or swelling. We have local pains in various parts of the body—pains in the chest, the stomach—pains in fibrous tissues, of a rheumatic character. There is scarcely a part of the frame exempt from pain, which is an aggravated state of the sensory filaments of the nerves. How often is the term inflammation coupled with it, and depletive treatment resorted to, to the increase rather than to the reduction of the evil! Such is the disease known under the objectionable title of *hysteria*, than which the study and observation of no disease is more indispensable to the practical surgeon. A few authorities, and those among the highest in our profession, have declared that hysteria prevails more or less actively in the large majority of diseases, whether medical or surgical, especially in the upper classes of society, but also that it largely pervades the lower. What has become of the thousand cases of supposed disease of the vertebræ in young women—the "spinal affections," as they were termed, that excited so large a share of interest in the professional mind forty years ago! What has been the destination of the thousand "inclined planes" employed in the treatment of the aforesaid "spinal affections," with the train of setons, issues, and blisters that were pressed into the service, so greatly to the advantage of the constitutional health? Which of us amongst the seniors of our profession can fail to recall in abundance cases of "spinal affection," the diagnosis of which was based on the single feature of pain caused by pressure on the spinous process of a single vertebra? We almost blush from a sense of shame as we recall to mind the occasions of our ready adhesion to this unscientific and preposterous doctrine in days gone by—a doctrine worthy of no higher or more useful purpose than that of upholding a false argument in a court of law. What are these cases? What is the supposed nature of the disease in question? Is it caries? Is it necrosis? Is it an affection of the medulla spinalis, of bone, or of fibrous tissue? Is it true or untrue that pressure of the finger on a spinous process can detect caries of the body of a vertebra? Do we ever find caries involving one vertebra only? Yet on *this single feature of pain, at one point, unsupported by any collateral evi-*

dence of spinal disease, hundreds and thousands of young women have been thrown out of society, deprived of education and of many of the appliances of health, to live a factitious and artificial life for years.

There is another and scarcely less frequent variety of hysteria, which consists in a loss of the harmony of action of a set of muscles. Flexors and extensors may fail in their proper antagonism; the neck may be permanently twisted; the forearm firmly and immovably bent; the hand closed, or the leg drawn upwards. Such cases are not rare; on the contrary, they are frequent. Are they commonly recognised as affections of the general health, and as not amenable to the local treatment which is too often resorted to for their cure? Although the indication of disease points to the muscles, there can be no doubt that the seat is really referable to the nerves which supply them.

Of cases of hysteria under the form of painful joints I have had several examples of more or less duration and severity. Though occasionally obstinate, they yield to the local application of opium in extract, and of pressure by means of adhesive plaster; constitutionally, to bark, valerian, and ammonia. The spinal cases of hysteria are marked by the severity of the pain, the intensity of which characterises no true disease of the spine with which I am acquainted. They yield to the same local remedy, to active friction by the hand, and to the same constitutional agents as are above enumerated in the examples of hysteric joints. Of muscular affections I propose to mention three examples selected from a list of many.

A young woman, aged 28, was admitted in February last. She was sent to the hospital from the country, at the instigation of the medical attendant of the family in which she filled the office of lady's maid. Several weeks prior to her arrival she had experienced some difficulty in swallowing, for which malady medical advice was resorted to. In the course of a week or more she became unable to swallow any description of solid food, and a second medical opinion was obtained in consultation. A probang was introduced, but its progress was arrested at about four inches below the pharynx, and it was withdrawn. A second and a third attempt was unsuccessfully made to overcome the obstruction. The food was confined to liquids, which were given in small quantities at short intervals. The patient lost flesh from defective nutrition, and after a period of seven or eight weeks the disease was apparently on the increase, and she was sent to the hospital. When I saw her on her arrival she appeared cheerful, and though thin, was not otherwise unhealthy. Having learned the particulars of her case, partly from her own lips and partly by letter, I had no doubt whatever that it would prove to be a case of hysteria. It appeared obvious that it must be so, simply because it was most improbable that it could be any other disease. The symptoms of real stricture of the œsophagus do not coincide with the history of this case, and it is a far more protracted disease in its progress. Under the free employment of bark, valerian, and wine, she rapidly improved. At the expiration of a fortnight she could swallow minced animal food, and in three weeks I saw her dining off a rump-steak, which appeared in detail to pass into her stomach without any kind of difficulty. Before leaving the hospital, she expressed a wish that I would pass a probang or bougie down her throat—a wish which I declined to comply with.

A girl, aged seventeen, was admitted with what was termed "inflammation of the elbow joint." I learned that she had sustained a severe fall on the arm several months prior; that the arm became gradually bent at the elbow joint, and was now fixed at a right angle. She had worn splints for some weeks. There was neither heat nor swelling about the elbow-joint. The joint was not fixed; and on attempting to extend the fore-arm, the extension, though slight, was made by jerks spasmodically; and on the remission of the extending force, the arm returned immediately to its former situation. This state of the muscles is highly characteristic of hysteria. At the expiration of ten days, during which the girl's health was much restored, under the influence of chloroform I straightened the arm without the smallest effort. The limb was placed on a straight splint, which was removed at the expiration of

four days; and ten days later the girl left the hospital quite well. I subsequently learned that the fall had occurred many weeks prior to the date of the first symptoms affecting the joint.

I quote the third case from my private notes :—

A young lady, aged fourteen years, was the subject of extreme inversion of the right foot. On inquiry I ascertained that about eight weeks prior to my interview with her she exhibited a tendency to turn the foot inwards in walking, and that the abnormal position of the foot increased from day to day until the toe of the affected foot pointed behind the opposite heel. An orthopædic surgeon was then consulted, who ordered a modification of Scarpa's boot, with all the appliances of straps, buckles, and springs. A second authority confirmed the view of the first; and for many weeks the patient was subjected to the restraint of the apparatus. Could a disease of this character, occurring almost suddenly in a young girl, otherwise not apparently unhealthy, be any other than hysteria? I ordered her wine, ammonia, and valerian. It is no exaggeration to assert that within three weeks her foot was perfectly restored to its natural situation; and what is not less worthy of remark is, that the entire period of restoration occupied less than twenty-four hours—I mean, that her recovery was almost sudden. This patient, I am informed, has subsequently had a slight return of her malady.—*Lancet*, Jan. 9, 1864, p. 31.

107.—ON THE PHYSIOLOGICAL ACTION OF THE UTERUS IN PARTURITION.

By Dr. ARTHUR SOOTT DONKIN, Lecturer on Medical Jurisprudence to the University of Durham, Neville Hall College, Newcastle-on-Tyne.

[The writer commences by stating that the object of the present paper is to consider the question, To what extent does the uterus contract during labour? in other words, Does the entire organ contract during a labour pain? He first reviews the various hypotheses which have been from time to time advanced by other observers.]

Wigand, first of all, advanced the hypothesis that the contractions of the uterus in parturition are essentially peristaltic, commencing in the cervix, and gradually advancing into the body and fundus of the organ, and then pursuing a retrograde course to the point where they originated.

This theory of Wigand has been adopted by Muller, Michaelis, Rigby, Churchill, Tyler Smith, Farre, and others; and the data on which it is supposed to be established consists of the following phenomena witnessed in the early stage of parturition, before rupture of the foetal envelopes, and the discharge of the amniotic fluid. 1. So soon as a uterine contraction at this period begins to develop itself, the cervix is felt to become tense. 2. The head of the foetus, or presenting part, suspended in the surrounding fluid, recedes from the orifice of the uterus, while the orifice itself becomes filled with a bladder-like protrusion of the amnion filled with fluid. 3. In the course of a few seconds later the foetal head is felt to descend again, or to be forcibly protruded against the os uteri. Now, it is argued that if the uterine contractions, which expel the foetus, had in such instances commenced in the fundus of the uterus, and travelled downwards to the cervix, the head of the foetus, instead of receding at first from the uterine orifice, would be pushed forcibly against it.

Dr. Murphy, so far as I am aware, was the first to dispute the accuracy of Wigand's conclusions based on the phenomena just referred to. "In Wigand's explanation," says Dr. Murphy, "the influence of fluid pressure seems to be altogether forgotten. The immediate effect of contraction commencing at the fundus would be to compress the liquor amnii, which of necessity forces its way on to the mouth of the uterus. The fluid in this position reacts against the head with a power equal to that which compresses it, and therefore pushes the head up until the increasing contraction of the fundus forces

it down again, so that the phenomena quoted are quite consistent with the statement that uterine contraction begins at the fundus; in fact, it could not be otherwise so long as the waters remain in the uterus. But if the contraction commenced from below, the fluid must be driven upwards, and that portion between the os uteri and the head pressed aside, at least in the first instance, so that the head might be easily felt when the pain commences, although not so afterwards."

The tension of the cervix constituting, according to Wigand and his followers, the earliest manifestation of uterine contraction, is considered, and very justly so, by Dr. Murphy, to be merely passive, and the result of the mechanical pressure of the propelled fluid against the inner surface of the lower segment of the uterus. Dr. Murphy considers uterine contraction to be peristaltic, and, in opposition to the theory of Wigand, maintains that it commences in the fundus, and pursues a course towards the orifice of the uterus.

Braun also maintains that the contractions of the uterus do not begin in the cervix, but at the orifices of the Fallopian tubes, thence expanding equally over the entire circumference of the organ, its centripetal action being thus developed, which, as in other hollow muscular organs, is in the direction of its outlet.

Scanzoni offers the same objections to Wigand's theory as those advanced by Dr. Murphy, and urges that the simultaneous protrusion of the bag of membranes at the os uteri, and the ascent of the head at the invasion of a labour pain, are incompatible with uterine contraction beginning at the cervix. This distinguished obstetrician urges that a normal uterine contraction commences neither in the fundus nor lower segment of the uterus, but is equally spread over the entire organ.

The most recent contribution on this subject, with which I am acquainted, is that of Dr. Christie, of Aberdeen. This observer "doubts greatly if the action of the uterus in labour is of the kind that can, strictly speaking, be called peristaltic. The contraction, it is true, begins in the fundus, and then extends downwards over the body and cervix of the organ; but one point is not relaxed as the contiguous one begins to contract. From the first to the last moment of contraction, the fundus is active." "For many years past," says Dr. Christie, "I have rarely omitted to make observations in regard to the matter, and in no instance have I ever been able to detect anything like peristaltic action."

Dr. Christie rejects Dr. Murphy's speculative interpretation of the phenomenon, on which Wigand chiefly based his theory of uterine contraction, namely, the retraction of the head of the fetus at the commencement of a labour pain, and advances the proposition that this is simply an apparent, not a real, occurrence. "It is," he remarks, "wholly due to the accumulation of fluid between it and the membranes; and the matter has been so often investigated and reinvestigated in the course of my own practice, that I feel no misgivings in insisting on that just stated as the true explanation of it."

It is obvious, then, that notwithstanding the opposite views entertained by these authorities concerning the point of origin and direction followed by a uterine contraction, they are unanimous on one point, namely, *that in each contraction the entire organ participates, the cervix included.*

The observations just quoted from the opponents of Wigand, are undoubtedly sufficient to demonstrate that his hypothesis of uterine action is untenable, and founded on a misinterpretation of certain phenomena. In the following observations I will not attempt to decide whether each parturient contraction begins simultaneously throughout the entire uterus, according to Scanzoni; or whether, according to Murphy, Braun, Christie, and others, it commences in the fundus, and then travels downwards to the cervix. This is a question irrelevant to the object of the present inquiry, which is to determine whether the *entire uterus is, or is not*, thrown into a state of contraction during a labour pain. This is a question which, as I shall afterwards attempt to show, has a most important relation to the pathology of *placenta prævia*. and is, therefore, deserving of the most careful consideration.

The following propositions will best express what I am about to advance on the subject:—

Proposition I.—*During natural parturition, the seat of contraction is the fundus and body of the uterus; contraction ceases entirely in the lower segment of the uterine body.*

Proposition II.—*The cervix and a short zone of the body of the uterus, continuous with and adjoining it, do not contract with each labour pain, but, instead, undergo passive mechanical expansion, by which the canal of the cervix is dilated, so as to permit the escape of the fetus and its appendages.*

Physiologically, then, during parturition, a line separates the lower or cervical zone from the lateral and fundal regions above. *Below* this line there is passive mechanical expansion; *above* it, active rhythmic contraction.

Immediately after the gravid uterus has expelled its contents, the cervix becomes passively contracted, like the so-called sphincter of the bladder, its contraction being induced by the removal of the distending force.

Now, these propositions I shall endeavor to establish by the following data:—

1. *Anatomical and Histological.*—There is no principle better established in physiology, than that an organ, in order to perform a special function, requires to be endowed with a special organisation; and we find the cervix uteri, on careful examination, to be no exception to this rule; for when compared with the body of the organ—(its lateral and fundal regions)—it presents in its anatomical and histological conformation differences so characteristic and unmistakable as to be considered by some almost a distinct organ. These differences are as follows:—

In the uterine body (fundus included) the middle coat, consisting chiefly of involuntary muscular fibre, united by a moderate quantity of connective tissue, is so closely united *externally* to the peritoneal coat, that they cannot be separated in many parts except after prolonged maceration; while the mucous membrane investing its inner surface is everywhere smooth, and covered with the orifices of its utricular glands or follicles.

The middle coat of the cervix, on the other hand, is not invested with peritoneum, except only a portion of its posterior surface, and even this is separated to a considerable extent from the peritoneal investment by a mass of loose connective tissue; and a similar layer of this tissue also intervenes between the cervix anteriorly and the urinary bladder with which it is in anatomical relation. M. Jobert was the first, if I mistake not, to direct special attention to this important relation between the uterus and peritoneum. This accurate anatomist observes, that it may be established as a law that the peritoneum is intimately connected with the body of the uterus by muscular fibre, both in woman and the lower animals,—never by areolar or yellow elastic tissue; while, through the entire mammalian series, lax areolar or connective tissue is the means of union between the peritoneum and the neck of the uterus, the vagina, and large ligaments.

In the next place, the middle coat of the cervix differs remarkably from that of the uterine body. *First*, in the absence of a superficial layer of longitudinal muscular fibres; *secondly*, in the much more circular arrangement of its muscular fibres, which, according to Jobert, “constitute semicircles and decussate without mingling, the semicircular arrangement being more evident in women who have had children than in others;” *thirdly*, in the great preponderance of elastic fibrous tissue over the muscular element; this fibrous tissue consists of long detached bundles of fibres, stronger and tougher than the connective tissue which unites the constituents of the muscular and mucous coats of the body of the uterus. The middle coat of the cervix, then, *has much more of a fibrous than of a muscular character.*

The mucous membrane of the cervix differs remarkably from the smooth glandular lining membrane of the body of the uterus. To borrow the description of Dr. Farre, it is everywhere folded into *plicæ*, “which constitute a series of primary folds, from which others of a secondary order are produced. These emerge from either side of the lateral plicæ, and, crossing the furrows between them, subdivide, divide again and again, until the whole surface

presents that cribriform aspect which can be just discerned by the naked eye but cannot be accurately explained without the aid of the microscope." The depressions between the smallest or ultimate series of plicæ are occupied by numberless mucous crypts, which appear to furnish the peculiar mucous secretion of the cervical canal. But I may observe that such a complex and intricate folding of the mucous membrane of the cervix is unnecessary for the purpose of supplying merely a secreting apparatus of a very simple description.

The chief peculiarities, then, of the cervix (which undergoes hypertrophy in all its parts, during pregnancy, without sustaining any change of contour, or becoming towards the end of that period, gradually incorporated into the cavity of the uterus, as shown by the researches of Professor Stoltz, of Strasburg, and more recently by those of Dr. Matthews Duncan) are the histological composition of its *middle coat*, in which predominates a tissue always largely employed in the animal economy, wherever great elasticity, tension, and freedom of motion are required, and the nature of its lining membrane, or inner coat, which is folded up in a manner so complex as to give the greatest possible extent of surface in the smallest possible space, and to permit it to expand, or rather *unfold*, during childbirth, to an almost incredible extent, without suffering laceration. Besides, its relation with the peritoneum and urinary bladder is such that it inflicts no fatal injury on them by the change in size and shape to which it is subjected,—first, by mechanical expansion, and afterwards passive contraction.

In the mechanism of the cervix, in short, we perceive an admirable contrivance to enable it to undergo, during parturition, a degree of dilatation unparalleled in the human organism, a dilatation so excessive that its canal, which, before labour in primiparæ, is closed, becomes, at the completion of the first stage of that process, expanded to such a degree, that it permits the escape of the head of the matured fetus, measuring, in its shortest diameter, not less than $3\frac{1}{4}$ inches, and acquiring, for its passage, a circle of about 11 inches.

2. *The pathology of placenta prævia* affords important evidence in confirmation of the propositions I have advanced. In cases of this nature extended practical observation, especially the researches of Dr. Barnes, of London, have shown that the whole of that portion of the placenta (whether the entire organ or a portion of it) *abnormally implanted within the lower or cervical zone of the uterus is detached or peeled off during the first stage of labour, while the other portion normally seated beyond or above the boundary of this zone, retains its attachment until after the expulsion of the fetus.* In such instances, then, it is obvious that the condition of the uterus, during labour, *above* the line of spontaneous detachment, must be very different, or diametrically opposite, to that portion *below*; and as the condition above is that of active rhythmic contraction, the opposite condition below must be one of passive or elastic expansion from mechanical agencies. In no other way can the phenomenon just referred to be explained.

If, as I have urged, the cervical region of the uterus is mechanically stretched, during the early stage of labour, to such a degree that its outlet attains a circumference of about 11 inches, it follows that this region must undergo much alteration in shape; it must, indeed, be so shortened at the period when the fetal head passes through it as to form a short band bordering the adjoining portion of the uterus above. That it does actually become so shortened is strikingly illustrated in those cases of *partial placenta prævia* in which only a portion of the placenta is implanted within the cervical zone, its margin reaching the os internum. This portion, of course, is peeled off during the first stage of labour, and at the completion of that stage is found protruding to a considerable extent from the orifice of the uterus, while within the orifice the rest of the placenta is normally adherent.

3. *The gradual thinning, and at last complete obliteration, of the cervix, as labour progresses*, so that at the commencement of the second stage the cavity of the uterus and the dilated vagina form one continuous canal or passage, uninterrupted by the cervix dipping like a fold into the latter organ,

affords an important fact in proof of the accuracy of the views I have advanced.

4. *Practical observation* convinces me that the cervical region of the uterus does not contract during a labour pain; the rigidity of which it is then the seat is not evidence of contraction, but the effect of the distending mechanical forces to which it is subjected; these being the pressure of a fluid wedge before rupture of the fetal envelopes, and the presenting part of the fœtus afterwards. I have made the subject one of special investigation in numerous instances, and have had the matter convincingly illustrated in those cases of tedious labour in which the anterior portion of the cervix, incompletely expanded, protrudes as a fold between the os pubis and the head of the fœtus, preventing the further descent of the latter. When this fold or projection of the cervix is gently slipped over, so as to embrace the head, it can be felt stretching or expanding under the finger during a labour pain. Were this region of the organ to contract, it would greatly impede or entirely suspend the progress of labour.

It follows, therefore, that there is a perfect analogy between the parturient uterus and the urinary bladder during micturition; the mechanical resistance of the cervical region of each organ being overcome by forces acting from above, in the one instance quickly, in the other slowly; the only difference being that the contents of the uterus, being solid and bulky, meet with a much greater degree of resistance, and require for their expulsion a series of frequently-repeated efforts, between each of which there is a period of repose, while a single contraction is sufficient to evacuate the fluid contents of the bladder.

Now, if the propositions I have advanced concerning the mechanism of parturition, as regards the uterus, be correct—and I have endeavoured to demonstrate their accuracy—we are at once furnished with a key to the establishment of a correct pathology of placenta prævia, and with an intelligible explanation of certain important phenomena inseparably connected with that form of dystocia. Thus we are at once able to perceive why the encroachment of the placenta, even to the slightest degree, within the cervical zone of the uterus is incompatible with normal labour; why any portion of the placenta thus abnormally seated is detached during that process, and its separation attended by hemorrhage of a character opposite to the accidental and post-partum varieties, in being synchronous with uterine contraction and ceasing in the intervals of relaxation; and lastly, *why this unavoidable hemorrhage is spontaneously and permanently arrested at a certain period during the progress of labour*, as I will attempt to show by the following brief observations.

The clinical researches of Dr. Barnes have unquestionably shown that the period of spontaneous cessation of prævia hemorrhage coincides with the period of complete detachment of the placenta from its abnormal adhesion within the cervical zone, however slight or extensive that may have been. But Dr. Barnes was unfortunate in attributing the production of these phenomena to "contraction of the cervix;" because both are due to its mechanical dilatation. In cases of placenta prævia during the first stage of labour, this expansion or unfolding of the cervical zone of the uterus and detachment of the placenta from it, proceed *pari passu*, until the period arrives when the portion of the latter abnormally seated is entirely cast off. The sudden arrest of the hemorrhage at this period is not due simply to the completion of placental detachment, but to the degree of expansion which the cervical zone has then undergone: the utero-placental vessels, previously divided on its inner surface, are by this expansion or stretching of its tissues mechanically compressed and occluded in passing through its substance. In other words: the remarkable change of contour—of circular stretching and shortening—which this region of the uterus has then been subjected to, and the disturbance of the natural relation of its tissues are so extreme, that blood vessels can no longer permeate its substance as cylindrical canals pervious to the blood. This mechanical squeezing of the divided utero-placental vessels continues until the fœtus is expelled; passive contraction of the cervix then replaces the previous passive ex-

passion, and in its turn is powerfully hæmostatic in preventing a recurrence of the hemorrhage after the uterus has been emptied. This is the mechanism by which the pre-partum hemorrhage in placenta prævia, whether partial or central and complete, is spontaneously and permanently arrested.—Edinburgh Medical Journal, Dec. 1863, p. 523.

108.—A NEW UTERINE PORTE CAUSTIQUE.

By Dr. FREDERIC D. LENTE.

An efficient uterine porte caustique by which the nitrate of silver may be applied thoroughly to the whole extent of a diseased cervix, or to the interior of the body of the uterus, has long been a desideratum. Every physician who has been in the habit of treating diseases of the uterus to any considerable extent, and especially by local medication, must have experienced constant annoyance from the difficulty of making applications with any of the appliances hitherto recommended. It is probable to this cause more than to any other that the intractable nature of chronic inflammation of the cervix (cervical leucorrhœa) is due. I have found the little instrument here described by far the simplest and most efficient means of applying nitrate of silver to the cervix and body of the uterus, of all the contrivances that I have seen. It has been tried by a large number of physicians in New York, Boston, and other cities, and has given great satisfaction. I have therefore ventured to recommend it publicly to the profession. It is simply a long silver probe attached to a handle, with an olive-shaped enlargement an inch and a half from its extremity; the whole instrument should be just ten inches in length. The enlargement is for the purpose of showing when the extremity has reached the internal os, so as to prevent the caustic from touching the interior of the body of the womb when this is not advisable, if it is to be passed into the body, the enlargement will offer no resistance. It is armed with the nitrate by melting the latter in any convenient vessel; then, after having *cleaned the end thoroughly and heated it moderately in a spirit lamp*, by dipping it repeatedly in the liquid caustic, after it has cooled a little, until a sufficient coating is lodged upon it. In applying it, expose the os with the bivalve or with Sims's speculum, pass the sound to get the exact curve and direction of the cervical canal; bend the end of the probe to correspond, and then it can be passed directly to the internal os, or to the fundus, without losing any of the caustic in exploring, or unduly irritating the cervix. Just so much of the nitrate may be placed on the probe as may be thought necessary to leave in the uterus; it may be rubbed over the whole diseased surface repeatedly and firmly, and withdrawn, without any danger of detaching it from the probe, if the above directions are observed. The instrument may be had at Tiemann's and at Otto and Reynders's.—*Amer. Med. Times.—Dublin Medical Press, Oct. 23, 1863, p. 507.*

109.—ON A VARIETY OF CHRONIC PAIN IN THE BACK.

By Dr. HENRY GERVIS, Assistant Obstetric Physician to St. Thomas's Hospital.

[Dr. Gervis relates the following case and makes some remarks upon it which are well worth remembering.]

In April, 1860, Mrs. D., aged thirty, came under my care as an out-patient of St. Thomas's Hospital; she had a somewhat worn aspect, but did not appear otherwise unhealthy; her particular complaint was of a constant pain in the lower part of the back, which she stated that she had suffered from with but little intermission, since the year 1854, the date of her last confinement. She had been treated for it by both private and hospital physicians, and they all had spoken of it as a "weakness," connected with uterine disease; thinking it, I presume, that sympathetic "dolor dorsai" which consti-

tutes so frequent a symptom in the history of uterine affections. She had however, never suffered from any other symptom of such disease, excepting an occasional catamenial irregularity and an occasional slight leucorrhœa, but at the time I first saw her, the catamenia were regular and she had no abnormal discharge, and yet the pain in the back was both constant and severe.

On a vaginal examination, digital and specular, the uterus was found somewhat large but without tenderness, and otherwise healthy. No disease, in fact, was detectible to which this chronic pain could in any way be ascribed. On a careful examination of the back, I found that she defined the pain as being especially connected with the left sacro-iliac synchondrosis; on percussion or pressure upon this articulation there was a marked amount of tenderness, and on taking hold of the ala of the corresponding ilium, and pressing it backwards and forwards, she experienced a considerable increase of the pain. On further questioning her, I found that the pain was least when she was lying at rest; worse when she walked, and greatly aggravated by a false step, a sudden twist, or any other unexpected movement which affected the articulation, as in slipping over the kerb, missing a stair, treading upon a loose stone, &c. Her general symptoms approximated to those of slight hectic; there was some variable febrility, some loss of flesh and appetite, and a sense of weariness, induced by the constancy of the pain. I could detect no local external fulness or thickening, but the tenderness was considerable, and limited to the synchondrosis. She was not a rheumatic subject, and though never very robust, had previously to the occurrence of this pain enjoyed fair health. I looked, therefore, upon the case as one of a chronic congestive, or subinflammatory condition of one or more of the tissues of the synchondrosis, following indeed her confinement, but unconnected with existing uterine disease. It was treated upon ordinary principles, by rest, the local application of blisters in narrow strips, of about two inches long and one broad (within a limit I defined by the pen); and as an internal medicine she took the bichloride of mercury in decoction of cinchona, three times a day, and at night some extract of henbane and Dover's powder, with an occasional aperient. She soon began to improve, and within eight weeks was completely relieved from a pain which had previously scarcely left her for six years. Her general health became also re-established. I of course should not have ventured to bring such an ordinary surgical case before the notice of this society, had it not happened that by several practitioners this pain had been considered wholly dependent upon an associated uterine disease, and that since the occurrence of this case, I had seen others in which a similar affection of one or other synchondrosis constituted their most important element.

Of the post-mortem pathology of these cases I am unable to speak, as fortunately for the patient, they rarely permit the scalpel or the microscope to aid in their elucidation.

In some cases there is a pain in the back, apparently of a rheumatic character, affecting the ligamentous and fibrous tissues about the articulation, and in some the periosteum is evidently affected. In these the iodide of potassium in combination with alkalies and other anti-rheumatic remedies, is of especial service; but in others, as in the case detailed, the affection is certainly of the deeper-seated tissues, the cartilage and fibro-cartilage, viz., which connect the bony surfaces. In four cases which I observed the pain came on after parturition, and in two the child was said to be an unusually large one. Possibly, in these, this was the direct mechanical cause of the subsequent condition of the articulation, the undue strain upon it originating that condition of its tissues to which the chronic pain which followed was referable. The patient whose case is detailed had borne no other child since the first occurrence of the pain, but another patient, in a labour subsequent to the one from which she dated the commencement of the pain, suffered much from it during her labour and from its aggravation afterwards. I need scarcely refer to the opinion founded upon what is said to occur in *quadrapeds*, that the human pelvis during labour undergoes some enlargement of

capacity by a slight yielding of its articulation, as I believe it has been pretty generally abandoned, but even if it were so, in those cases in which the condition under consideration appears to originate in a mechanical pressure or tension during parturition, the ordinary pressure must have been more than usual, or the capacity to yield less. But in other cases, with an equally defined affection of the synchondrosis, no such origin was assigned, but it was variously ascribed to a cold, a strain, "weakness" from some womb affection, &c. I have never met with it in the nullipara. Sometimes there is some varying increase of pain during the catamenial period, and this might easily suggest the idea that some uterine mischief was the cause of the backache; but as this variety of pain in the back may certainly coexist with a healthy uterus, the increase of pain at the monthly period is probably due to that customary amount of lumbar uneasiness which often accompanies the periodic congestions of the uterus, and which, in these cases, appears to the patient to amalgamate with her more constant pain; though really, as regards its cause, distinct. I presume, then, these cases to be mild forms of an affection whose severe form would be represented by abscess, and I think that the cases which occasionally occur of subacute or chronic inflammation, and of threatened or actual suppuration of the symphysis pubis occurring generally after a severe labour from large size of the child, and whose diagnosis is unmistakable, are confirmatory of the view I would suggest of the cause of an occasional form of chronic "pain in the back."—*Obstetrical Transactions*, Vol. 5, 1864, p. 76.

110.—ON DISPLACEMENT OF THE BLADDER AS A CAUSE OF TEDIOUS LABOUR.

By Dr. W. H. BROADBENT, Assistant Physician to the London Fever Hospital; Physician to the Western General Dispensary.

Undue distension of the bladder, prolapsus with accumulation of urine in it during labour, have long been known as sources of danger, and causes of pain and delay; and especially prolapsus with distension, as a mechanical impediment to the passage of the child's head, and as endangering the integrity of the organ, has received the consideration it demands; but I have been led to conclude that displacement and other conditions of the bladder, without involving the same serious consequences, frequently cause labour to be tedious and painful in the first stage, interfering with the dilatation of the os uteri by the substitution of false pains of a very severe character, which give much unnecessary suffering, and exhaust the strength of the patient before the expulsive stage comes on.

The conditions of the bladder which I have found thus to interfere with the first stage of labour are:

1. Complete prolapsus, with or without distension.
2. Partial prolapsus, *i. e.*, where the fundus remains between the uterus and symphysis pubis.
3. Distension while *in situ*.
4. Irritability?

They all appear to affect the progress of labour in the same way, and the attendant symptoms are similar in each, and very characteristic.

1. *Prolapsus*.—This displacement does not occur suddenly during labour, but in most cases is present before impregnation, as a result usually of repeated child-bearing. It may give rise to little or no inconvenience during pregnancy, and not uncommonly gestation goes to its full term, with no further annoyance than a frequent desire to pass water. Sometimes, however, the urine cannot be retained, and it dribbles away constantly, or the bladder is never thoroughly emptied. At any time during the later months of pregnancy the bladder may become distended, false pains of great severity may be set up, and labour may even be induced prematurely.

More commonly, however, gestation goes on to the full term, with only the slighter inconveniences first mentioned, and only when labour commences does this condition of the bladder give rise to serious trouble. The preliminary uterine contractions, generally painless, and often unnoticed, affect the prolapsed bladder; there is usually frequent desire to pass water, and if the bladder cannot empty itself the urine accumulates and distension results. But even if the bladder remains empty, the contractions of the uterus are soon accompanied with pain in the bladder, from pressure or traction, which becomes more and more severe. This pain seems to excite the uterus to more frequent contractions, and looking only at the frequency and sharpness of the pains, the labour may appear to be progressing rapidly. The pains, however, have a peculiar and distinctive character. The intervals are shorter than in the early stage of natural labour, and when inquiry is made, the pain is referred not so much to the back, as to the "bottom of the stomach," by which phrase women often mean not the hypogastric region merely, but the vagina and vulva; in this case its real seat is the bladder. The appearance and behaviour of the patient is different; so long as she chooses to remain on her feet and walk about, instead of placing the hands on the loins she prefers to lean on the back of a chair, or to sit down bending forwards with the hands or elbows on her knees, and though these attitudes are common in natural labour, a constant resort to them early in the first stage, generally indicates other than the ordinary pain, and particularly when the pains come on more rapidly than usual. With this there is more frowning, more active contortion of the features, biting of the lip, and, what is very characteristic, violent straining or forcing; not three or four prolonged efforts, as in the expulsive stage of labour, but in a series of short spasmodic jerks, almost involuntary, attended with great pain and expressions of impatience and suffering. The patient will often say she never had such pains before.

Frequently the patient, misled by the severity of the pains, their "forcing" character, and by the sensation of fulness and distension in the lower part of the vagina, imagines that the labour is near its termination, and betakes herself to bed at an unusually early period.

If the hand is placed on the abdomen, it will be found that the increased firmness of the uterus indicating a commencing contraction is at once followed by spasms of the abdominal muscles, and an examination per vaginam shows the same thing; first, tension of the cervix uteri, or of membranes, if they can be felt, from the action of the uterus, and then the uterus itself is forced downwards into the pelvis by a series of spasmodic contractions of the abdominal muscles. When this takes place, the normal action of the uterus appears to be suspended, as if replaced by the abnormal actions induced, or it operates under great disadvantage. At any rate little dilatation of the os uteri is effected; the labour is greatly protracted, and the patient suffers much unnecessary pain.

There may or may not be symptoms directly calling attention to the bladder; frequent desire to pass water, or inability to do so, or both, and there may not be accumulation of urine in the bladder. Sometimes, also, prolapsus, with distension, may exist without giving rise to any special symptoms in the early stages of labour.

The prolapsed condition of the bladder is readily recognized on examination, especially when it contains urine in any considerable quantity. The cavity of the pelvis is found to be occupied by a bag of fluid easily distinguished from the foetal membranes, by the fact that it springs from the pubis, and does not permit the finger to pass between it and the symphysis. As this sac, the bladder, fills up the hollow of the sacrum, the os uteri cannot be reached till the urine is evacuated, and if this is done by the catheter, the instrument can be felt from the vagina, and followed to every part of the bladder. When the bladder is perfectly empty, the displacement may be overlooked, but the finger, instead of circumscribing readily the lower segment of the uterus, meets anteriorly with the bladder from the symphysis pubis to the uterus, and usually disposed in rugæ; the introduction of the

catheter at once makes the case clear. The os uteri is almost invariably found high up and far back, so that the anterior part of the lower segment of the uterus, which may be felt in the vagina, and along which is spread the prolapsed bladder, presents an unusually extensive surface. I am disposed, indeed, to believe that the displacement of the bladder is for the most part secondary to the displacement of the uterus.

Partial prolapse I have considered worthy of mention distinct from the complete displacement, because it is more likely to be overlooked, and because the symptoms, though nearly the same, are usually even more severe. There is almost constantly a frequent desire to pass water, and the urine never accumulates. On examination, the lower part of the posterior wall of the bladder is felt in firm, small rugæ behind the pubis, generally tender when touched, and the seat of extreme pain when the uterus is forced down into the pelvis. The catheter may be felt to pass up between the cervix uteri and symphysis pubis, showing that the prolapse is not complete. The pains have the spasmodic straining character before described; the uterine contractions affect the displaced bladder, causing pain and irritation; as a consequence, violent reflex action of the abdominal and perineal muscles is set up; a kind of tenesmus, which supersedes the normal uterine action, and thus not only is the first stage of labour rendered long and exceedingly painful, but the patient is more exhausted than by a prolonged first stage without this complication.

I have enumerated as other conditions of the bladder affecting the first stage of labour in a similar manner, distension while *in situ*, and "irritability." Cases will be given which, I think, justify me in including them, and I pass them over without further remark than that the symptoms are of the same character, but usually not of the same degree of severity.

The treatment in these cases is simple, and often very effectual. Whenever the symptoms I have mentioned arise, pain in the region of the bladder, with premature involuntary straining, attention should be directed to the bladder, and I think it best always to introduce the catheter. Should any accumulation of urine be detected in the vaginal examination it is absolutely necessary. The patient should also be placed on her back; this not only relieves the bladder from a certain degree of pressure by the falling back of the uterus, but in those cases (and I believe they form a large proportion), in which there is an unnatural position of the fundus of the uterus forwards, and of the cervix backwards, the supine position will aid in bringing the axis of the uterus into correspondence with the axis of the brim of the pelvis. In some cases, also, much good may be done by drawing the anterior lip of the os uteri downwards and forwards, during an interval, and fixing it during a pain in this position. A third means, to which I should unhesitatingly resort, is the administration of chloroform. The effect is to put a stop to the violent spasmodic action of the abdominal muscles, which is of a sensori-motor character, while the proper uterine contractions, being not interfered with, neither by the straining effort, nor by the anæsthetic, effect the dilatation of the os uteri. The head once engaged in the pelvis, the displacement of the bladder, though it may still cause great suffering, does not interfere with the progress of the labour, provided, of course, that accumulation of urine has been guarded against.

I may here introduce the few remarks I have to make on the influence of position in labour. The advantages of the supine position in cases of relaxation of the abdominal wall with falling forwards of the uterus, having long been recognised, but they are not confined to instances in which this condition exists. Delay in the going up of the anterior lip of the os uteri perhaps more commonly marks the fact that the descent of the head into the pelvis is slow, than itself operates as a cause of obstruction to this descent. It will always, however, be an advantage to have it out of the way, and this may often be effected by placing the patient on her back. Any one may observe, as I have often done, the difference which this change of position from the side to the back, makes in the position of the anterior lip of the os uteri, and many members of the society may have seen cases in which it has been at-

tended with a marked change in the rate of progress of the child through the pelvis.

One case also I have seen, in which from the falling of the uterus towards the left side, the head of the child seemed to be directed against the right side of the pelvis, there being further a slight bending in of the ischium on this side; after long waiting, this condition suggested the placing of the patient on her right side, the supine position having been tried with no effect; the head at once cleared the obstacle, and the labour was speedily terminated, without any apparent increase of force in pains.—*Obstetrical Transactions*, Vol. 5, 1864, p. 45.

111.—READY-MADE PLASTERS.

Dr. TILT drew attention to the fact that when a hundred or a hundred and fifty grains of common starch are boiled in an ounce of glycerine, the result is a very stiff glutinous compound, which has no smell, and does not become rancid; and although sticking firmly to the skin, it can be removed and reapplied. Instead of ordering belladonna plaster, Dr. Tilt prescribes three grains of sulphate of atropia to be rubbed down with a few drops of glycerine, then incorporated with an ounce of hard glycerine ointment, and thickly spread by the patient on gutta-percha cloth or impermeable wash-cloth. This can be removed for the morning ablutions, and reapplied after spreading a little more ointment on the same plaster. Morphia and other alkaloids are prescribed in the same way. The samples exhibited by Dr. Tilt were made by Mr. Bullock, of Hanover-street.—*Obstetrical Transactions*, Vol. 5, p. 41.

112.—ON THE USE OF CHLOROFORM IN PUERPERAL CONVULSIONS.

By Dr. CHARLES KIDD, London.

While studying recently the general phenomena of chloroform administration in midwifery, more especially the stage of convulsive excitement that usually precedes the stage of deep narcotism, attention has been drawn particularly to a physiological fact of some importance—viz., that black venous blood in muscles, or pressure exerted on the *venæ cavæ* always increases this condition of chloroform excitement; in a word, that black blood acts as an abnormal stimulus to muscles, and most probably such pressure as that of a gravid uterus on the *cavæ* and other venous vessels in the abdomen in some patients may be one of the causes, or, more correctly, the immediate or chief cause of one of the forms of puerperal convulsions; very possibly that form said to be so much relieved by bleeding from the arm, where this black tide or *remora* of venous blood is taken directly out of the system. Of the fact physiologically there is no doubt, that such convulsion and black blood in muscles form impediments to respiration and are almost inseparable from chloroform administration! The diaphragm, as one of these muscles (and an important one), is not free from these convulsive actions; the cardiac orifice of the stomach too, which passes immediately through a foramen of this muscle, and is always, like the muscle, intensely sensitive to such pressure or convulsion (though the pyloric end is not) both react—hence the violent vomiting so often under chloroform, or vomiting and hiccup occasionally in ordinary labour cases, where the labour is rather slow—hence probably the misery of “sea sickness,” from the up-and-down dragging of the cardiac orifice or end of the stomach in the foramen of the diaphragm—hence probably the “morning sickness” of pregnancy, the enlarging womb pushing up the stomach.

The author submits these as reasons why puerperal convulsions *during labour or previous* to it are always more tedious or troublesome to deal with

than the convulsions which sometimes follow labour. The pressure of the gravid uterus conveyed to an impacted state of the bowels or congested liver, will keep up this form of pressure on the larger veins, and thus throw back a quantity of dark blood into the muscles. The analogy of numerous experiments on the lower animals would also indicate that mere black venous blood of itself is sufficient, the blood need not be poisoned with the elements of retained urea, carbonate of ammonia, &c., as theoretically supposed in manuals and books. Hyperæmia alone appears as a sufficient predisposing cause of convulsions, and chiefly by causing congestion of the muscles, and not, as usually supposed, congestion of the veins or vessels of the brain. The difference is at once apparent, though "standard books," so called, are almost every one wrong on the subject.

The form of puerperal convulsions which is seen *after* a labour, I am anxious to procure the experience of readers whether this is not usually or more often "reflex," induced (as in epilepsy) by irritation of peripheral nerves reflected back to the medulla oblongata and spinal column; thus several cases of puerperal convulsions of late, when carefully examined, were cured by chloroform, and found to be caused by the necessary irritating manipulation of passing a hand into the uterus to remove an adherent placenta. Here the irritation, purely nervous, starts from the nerves of the uterus or vagina, reaches the spinal cord and medulla oblongata, and is reflected back upon these very centres (whether through their nutrient nerves or otherwise, may be a little doubtful and not very important to decide); hence morbidly increased action and puerperal convulsions, which differ in a most marked degree from the previous variety caused by dark blood in the muscles.

Of these curious sympathies or associations of the genital organs in females with convulsive diseases, as seen in passing a hand into the uterus, the author would further cite several cases of epilepsy or epileptoid affections like convulsions, decidedly improved, if not cured, by cauterisation or excision of peripheral nerves in irritable parts, as the clitoris, which he has seen during the past two years. A corroborative fact, the converse of this, too, has been noted, that in bad vesico-vaginal fistula cases, or recto-vaginal injury in hospitals, where the normal condition or sympathy of the vagina for a time with the ovary has been disturbed or paralysed, menstruation usually ceases, but the moment the urine, trickling through the vagina, is redirected into its proper channel by an operation, menstruation is set up again with increased facility of flow; tied and bound together thus, so to speak, curiously, are the nerves and nervous associations of the vagina or uterus and its appendages, each acting, as in puerperal convulsions, through the medulla oblongata and spine.

Irritated ovary, associated with constant bleedings and enlargement, simulating fibrous diseases of the uterus, with most marked anæmia (the patient appearing as white as paper), the author has known to resist all routine tonic or steel hospital medicines (which, in fact, made the pain and anæmia worse), but yield in a few days to a removal of the primary cause of the disease under chloroform—namely, excision of irritable peripheral nerves as just mentioned. In 313 cases of puerperal convulsions treated by chloroform chiefly, and given by Sinclair and Johnson alone in their practice, the chloroform has a decidedly good effect in lessening the "impressionableness," so to term it, of the spinal cord. In all these puerperal convulsion cases of a reflex nature, but one is not so sure of the cases where the irritation, so to speak, is mechanical, by a back current of blood or hyperæmia of the muscles. It is hopeless to ask societies, like our Obstetric one in London, to go out of its course to correct any errors as to chloroform, prejudice is now so strong against this agent. It is probable that the use of some medicines, such as opium, tends in no indirect manner to predispose the patient to these hyperæmic convulsions in the puerperal state, not necessarily, perhaps, so much by inducing uræmia as by causing an obstinate condition of the bowels and sluggishness of the liver. We are not now concerned with the exact function of bile or the liver, or if calomel act on the liver (which some are supposed to doubt!) but these congestive cases are perhaps those where five or ten

grain doses of calomel have been supposed to do so much good by unloading the bowels and preventing pressure on the abdominal veins.

Some of these nervous associations of the uterus are singular and unexpected, like the pain at the tip of the right shoulder from liver disease, in a severe neuralgic pain well known in hospitals as "hysteric knee-joint;" and Mr. Hilton ascribes it to a nerve which he has demonstrated, which goes to the ovary and sends a long unexpected branch through the obturator opening to the knee-joint and another to its inside! So that even injury of a knee-joint might simulate ovarian derangement or *vice versâ*. There can no longer be any doubt as to the exceeding value of chloroform in ordinary midwifery practice. It is a great charity to the agonized patient in many cases, as when properly administered it need never interfere with the progress of the labour "pains." One hears occasionally, as from my friend Dr. Tyler Smith, of a case of labour which partly stopped while the patient was taking chloroform; but we forget that a labour may stop midway without any chloroform at all. One hears often, too, of women, as in cases of Dr. Greame, rendered deeply insensible for hours together through a labour. This need not be either, as we will find it scarcely ever necessary in labour to narcotise the great reflex centre or destroy consciousness. There are several errors afloat as to parturition without pain, and dilution of the chloroform so as to prevent its entering the blood, but such fictions cannot deceive scientific observers. Chloroform by rigid experiment is found always to enter the blood in inhalation of the vapour, but not at all to be decomposed in the blood under such conditions.

The writer submits whether this great difference between these two varieties of puerperal convulsions may not reconcile the vast differences of opinion that exist, even amongst the most experienced accoucheurs, as to the usefulness of chloroform in puerperal convulsions of midwifery generally. In one class of cases, that from congestion, it can scarcely be expected to act so well, as in the instances where the convulsions depend on abnormal nervous reflex action. It should not be forgotten, indeed, that even in the most ordinary "labour" reflex excitability is much increased by the process of evolution of the child in the uterus, especially if the membranes be once ruptured, when the fœtus becomes, as it were, a foreign body to be then thrown off. If this be subsequently continued by passing the hand into the uterus to remove a placenta, convulsions, as we know, are often excited. I believe that in none of the cases is the blood poisoned as usually supposed. *Dark venous blood alone excites convulsions.* Finally, it has been recently noted in practice of midwifery that chloroform has a tendency to induce a slight form of *inflammation of the lungs* by direct action, as supposed, of the chloroform as an acrid irritant on the air-vessels, but I have never seen this inflammation in hundreds of patients who had had chloroform in hospitals administered for various operations, nor in a considerable experience of midwifery patients who had had the same anæsthetic during labour. I am inclined to believe that in one or two patients, for instance, where it was seen, it was caused by unnecessary deluging the patient's chest with ice cold water as a restorative from apprehended syncope. Bad chloroform no doubt acts, when taken internally, as a violent irritant or narcotico-acrid, and externally blisters the skin. Impure acid chloroform may excite the delicate bronchial capillaries also; but pure chloroform has not been observed to do so, except possibly where slight bronchitis already existed, or the patient's chest was deluged with cold water, which it ought not to be.

The ultimate practical conclusions to be deduced from direct experiment on animals—viz., that convulsions ensue where mechanical pressure is made on the *venæ cavæ*, as also from the almost invariable concomitant of chloroform administration (where respiration is impeded), that black blood collects in the veins seems to be—

1. That similar pressure of a mechanical kind on the abdominal veins by a gravid uterus is one of the causes or more correctly, the immediate or chief exciting cause of one form of puerperal convulsions, the true remedy being to empty the uterus and remove the mechanical pressure.

2. That another very marked form of puerperal convulsions is caused by such irritation as that excited by passing a hand into the uterus, and here chloroform administration is eminently beneficial; and,

3. That there is probably no real blood poisoning in these convulsions, as theoretically supposed, in books copied from one to the other, the carbonate of ammonia or urea leading to coma, &c., but rather a state of simple hyperæmia or *remora* of black blood into the muscles in one class of cases, and simple reflex irritability of the uterine organs in the other, as now abundantly proved by sundry forms of convulsive diseases so superinduced, but only recently studied since the introduction of chloroform, and of clearer views on epileptic, convulsive, and other allied forms of uterine irritation.—*Dublin Medical Press*, March 2, 1864, p. 219.

113.—CASES OF VASCULAR TUMOUR OF THE MEATUS URINARIUS.

Under the care of Mr. SHILLITOE, Surgeon to the Lock Hospital, with remarks by Dr. G. DE GORRE-
QUER GRIFFITH, late House Surgeon.

There is at present under the care of Mr. Shillitoe, among the out-patients, an old and infirm married woman (about seventy years of age), who has for several years been a sufferer from the effects of vascular tumour of the meatus urinarius.

Sometime since she presented herself complaining of great pain in the genital organs, almost persistent—that is, she scarcely ever was quite free from it. By the efforts at micturition this pain was so intensified as to make it amount to excruciating agony, and that, not alone during, but for some time subsequent to, the performance of the function, so that the bladder was kept unemptied as long as the patient could, without actual pain, retain the urine; the urine itself was “thick and muddy” (to quote her own expression); was somewhat ammoniacal; as she entered the consulting-room, there was a distinct urinous odour given off from her person, and which, no doubt, was occasioned by a kind of stillicidium urinæ, she being not at all times able to command its retention. She had become emaciated and dyspeptic, fretful, cross, and “quite out of sorts;” there was pain on walking and moving, and a peculiar shuffling or waddling gait, as well as a cautious manner of sitting down, which had been acquired since the onset of her ailment; there was a whitish discharge from the vagina, apparently, however, limited to its lowermost portion, and a creamy or curdy exudation on and about the labia, also a great increase in the urethral mucus; there were likewise pains referable to the back, loins, and down along the thighs; the bowels were usually constipated, and required medicine to cause their relaxation.

Immediately on raising the clothes and separating the labia, some of the above-cited evidences of disease were detected, in addition to a large vascular growth, which seemed altogether to block up the entrance to the meatus. The growth had caused the meatus to have become so very much enlarged in calibre, as to be now quite equal in its area to the size of the tip of the little finger.

This tumour protruded somewhat from the lips of the meatus, which were thus in a measure pouted and everted, at the same time that they were surrounded by an œdematous condition of the mucous membrane; it was seen to be of a bright, shining, red colour, when the mucus, which was poured out over it abundantly, was wiped away with a piece of lint; it was distinctly lobulated, exquisitely tender, and ran up apparently so far as to involve the entire length of the urethral channel, though it seemed to have originated upon the lower wall; it did not easily bleed, and had for its covering the same delicate membrane as lined all the structures of this region; it was not pediculated, nor had it the jelly-like appearance which these tumours so often present; on the contrary, it was firmly consistent, if not even somewhat hard.

Passing the forefinger up along the anterior wall of the vagina, the entire urethra could be felt to be occupied by this growth; but not this condition alone was present. There was hypertrophic thickening of the mucous membrane enveloping the meatus, and also of the cellular tissue surrounding the urethra, conditions in themselves which, we know, and as Sir C. Clarke has demonstrated, would suffice to occasion no small uneasiness or even distress.

The patient being in a depressed weakly state, was put upon tonics, and when the health was improved the growth was freely destroyed by strong nitric acid.

According to Lee, Clarke, Boivan, and Dugès, these tumours are nothing more than a congeries of vessels, encased in their peculiar cellular tissue and in their proper mucous covering.

They may be fibrillated, or even more or less composed of fibrous tissue.

In the ninth volume of the 'Edinburgh Monthly Journal' there is given, by Mr. Queckett, the following microscopic description of one of these tumours:—"The tumour was white, and had numerous small confervoid filaments attached to its outer surface, from having been some time in water. A thin slice, from the external surface, when examined microscopically, exhibited the same structure as ordinary cuticle, the epithelium of the outermost layer being composed of flattened scales; while the cut surface exhibited the same kind of cells more condensed, and firmly adherent together. A vertical section through the middle of the mass showed several papillæ of various sizes, which were very vascular and surrounded by an investment of cuticle, which, with the papillæ, made up the entire mass of the growth; at that part where the papillæ were situated, the growth was smaller than at the opposite extremity, as though it had been attacked by a constricted neck or pedicle.

The papillæ were no doubt largely supplied with nerves as well as with bloodvessels, "but their presence could not be detected by the microscope."

Dr. Fleetwood Churchill says, "these tumours may be considered as a variety of epithelioma."

The attention of the profession was first drawn to this affection by Mr. Sharp in 1750, and in the year following by Morgagni, who mentions having detected in the orifice of the meatus "a triangular excrescence." The patient of the former was a virgin. The growth was made out during life; the subject of the affection noted by the latter was an old woman, and the existence of the tumour was discovered at the autopsy.

Mr. Hughes, of Stroudwater, Gloucestershire, in a case that came under his notice about the year 1768, excised the meatus along with the tumour; this mode of treatment effectually removed the disease, and there was no return in any remaining part of the urethra.

The treatment pursued has been varied in the hands of different practitioners. Dr. Churchill, *until lately*, preferred excision, and the immediate application of the strong nitric acid, "as being quicker than any other plan of treatment, and less painful." "I think, too," he says, "that the tumour is less liable to grow again, if the caustic be applied freely to the *raw* surface."

"If," he continues, "excision be determined upon, the tumour should be snipped off with a pair of scissors close to the mucous membrane, and the root touched with lunar caustic, nitric acid, or the potassa cum calce.

"The operation occasions some pain, which soon passes off, and it is seldom followed by hemorrhage to any amount; however, I have seen the removal of a small excrescence followed by very considerable hemorrhage; the patient was very unmanageable, and I suspect that the nitric acid was not effectually applied. The bleeding was promptly arrested by a saturated solution of the perchloride of iron in glycerine.

"After a few days the caustic should be reapplied to the root of the tumour, and repeated at intervals until the disposition to reproduction has entirely ceased.

"For some time past, however, I have adopted a modification of this treatment, which appears to me a great improvement. In the first place, I seize the tumour close to the root with Dr. Wilde's instrument for polypus of the ear, which occasions no bleeding, and strangles the tumour; then I snip it off below the instrument and apply caustic to the stump. After the slough has separated, I repeatedly cauterise the root with a red hot knitting-needle until it is entirely destroyed. This is far better than caustic of any kind, inasmuch as no damage is done to the neighbouring parts; we can reach far down the urethra, and the pain, though severe at the moment of contact, is of much shorter duration.

"After the tumour is removed and the caustic applied, the parts ought to be kept constantly wet with some refrigerating lotion, as a means of preventing inflammation and the reformation of the tumour. It will be necessary for the patient to take two or three doses of purgative medicine, and to remain very quiet for some days."

Mr. Bringham, of Lynn, adopted, and with success, the practice of touching the extremity of this vascular growth with the actual cautery.

Sir C. Clarke formerly used the broad ligature as the means of removal, but latterly put into practice the plan of excision, and the immediate touching of the raw surface with caustic.

Dr. Ramsbotham uses a thin ligature for the same purpose. Mdm. Boivan, having excised the tumour, applies to the bleeding surface only some powdered alum. Dugès advises simple astringent lotions.

Some adopt the ligature of dentist's silk (waxed), and having strangled the tumour, remove it, thus strangled, below the point of deligation; others there are, again, who adopting the plan advocated by Mr. Bringham, merely use the actual cautery. In the diagnosis of the symptoms of which our patient will complain, we must be careful not to be led into the supposition that the uterus, the rectum, or the bladder itself, is at fault, that there is any actual organic disorder of these viscera, and we should be able to recognise the mere sympathy of the organs mentioned from any morbid changes which may affect them. In the case of this vascular tumour of the meatus, there is merely a disturbance of their normal action. Respecting the time of life at which the affection obtains, Dr. Churchill says, "I saw one in a lady of twenty, and another in one of seventy years of age. They also sometimes occur in very young subjects."

Mr. Norman has seen it exist in patients at the ages of fifty and fifty-two, while Sir Charles Clarke says, that he never had in his experience seen it in any female who had passed the middle age.

I have myself seen it in one instance, where the child was about ten years of age; in another, where the age was about nine; and in a third, where the age attained was only a few months. In all three cases there was vaginal discharge, vaginitis, and urethritis; in the child of ten years there was a syphilitic constitutional taint inherited from the parents, and the mother was, at the same time as her little daughter, suffering from vaginal discharge. In the case of the second child, there was a true and aggravated form of gonorrhœa, produced by a rape committed upon the child. The third child had congenital syphilis in addition to the vulvitis and this vascular growth. They were all treated topically with simple lotio plumbi, under which the local condition slowly amended.

Causes.—I have seen the growth very frequent amongst prostitutes, amongst those who are guilty of masturbation, especially if the urethra have been the site of much irritation and titillation—also in those affected with gonorrhœa, vaginitis, and urethritis;—the latter condition seems particularly to predispose to it, and apparently in the following manner occasions it:—As a result of the inflammation of the mucous membrane, there is increased vascularity of the part so inflamed, the vessels become in a certain measure paralysed, dilated, congested, and engorged; then their coats become organically altered, being thickened by the inflammatory exudations, the areolar tissue in which they are imbedded likewise participates in the thickening, and thus increases the amount of prominence. In very many instances I have noticed

an œdematous condition either of the mucous membrane covering the surface of the growth or surrounding it, and in immediate continuity and contiguity with it; indeed this œdematous state may even sometimes, I apprehend, be the first stage of the affection, the great vascularity, tension, and excessive sensibility being subsequently developed.

In one case the vascular growth was co-existent, at the time of my examination, with a calculus in the bladder, but had originated after the stone had been formed, as though the latter, acting mechanically—as, in fact, a mechanical irritant—upon the delicate mucous membrane of the urethra, had induced the former.—*Medical Circular, April 27, 1864, p. 276.*

MISCELLANEOUS SUBJECTS.

114.—ON THE PREPARATIONS OF OPIUM AND THE SALTS OF ITS ALKALOIDS.

By Dr. A. B. GARROD, F. R. S., Physician to King's College Hospital.

Before going more into detail, I will first take a rapid glance at the components of the drug, upon which its value depends. Morphia is, *par excellence*, the important principle of Opium; almost all the good effect of the remedy may be obtained from its employment. It certainly possesses its anodyne and soporific powers; still, a very slight examination of the composition of Opium will show that it cannot be the sole active ingredient. Good Turkey Opium contains about 12 per cent. of Morphia, estimated as the hydrochlorate of the alkaloid; it follows, therefore, that if the whole power were dependent on this principle, we should find it much more potent than it really is; the hydrochlorate should, in fact, be about eight or nine times the strength of the crude Opium, whereas it is scarcely four times as strong. This is a point to which I have paid some attention, and, in order to determine the relative powers of the two remedies, have selected patients suffering from pain of a chronic character or habitual restlessness,—patients who were intelligent, and whose veracity could be depended upon. To these I have administered, at one time Opium itself, at another Hydrochlorate of Morphia, without the patient being at any time aware of the alteration from one to the other. From numerous trials made in this way I have become satisfied that Hydrochlorate of Morphia is about four times stronger than Opium, both as an anodyne and as a soporific.

We must hence conclude that Opium contains active principles or ingredients other than Morphia.

Let us examine the action of some of the other constituents.

A second alkaloid—*Codeia*—exists in Opium in very notable quantities, and is prescribed, both in this country and more especially in France, as a substitute for Opium and Morphia. It is asserted by some to possess the soothing properties of the latter drugs, without giving rise to the uncomfortable symptoms so often arising from their administration. I will give the results of my experience of the action of this alkaloid.

Perhaps many of my hearers may remember that not long after the first employment of Hydrochlorate of Morphia as a remedy, and when it was known to be accompanied with the Hydrochlorate of Codeia, that the irritation of the skin occasionally witnessed after the use of Opium preparations was ascribed to the presence of Codeia; that such an opinion is erroneous can be easily demonstrated, for when Hydrochlorate of Morphia is completely freed from Codeia, as it is in commerce at present, it still produces irritation of the skin in certain individuals; and again, when a salt of Codeia is given alone to the same patients, no such symptom is manifested; this I have proved by clinical observations. We have next to enquire whether Codeia produces the good effects of Opium or Morphia. I have endeavoured to test this in several cases. In one instance, that of a patient having a tumour in the orbit, giving rise to neuralgia in the branches of the fifth nerve of daily occurrence, I had a good opportunity of putting this question to the test. I may state that half a grain of Hydrochlorate of Morphia always allayed the pain, and, in fact, relieved it completely for a time. This having been proved by repeated trials, I proceeded to give the same amount of the Hydrochlorate of

Codeia; but its administration was not followed by an appreciable effect upon the pain. In other trials it was increased until five grains were administered, but still there was an absence of relief. Similar trials upon other patients have led to the same result; so that I feel quite satisfied that Codeia does not possess the anodyne powers of opium or morphia. To test the soporific properties of Codeia, I have given it in doses varying from one to three grains in cases of restlessness or wakefulness in which morphia has previously been shown to prove efficient, but in every case have failed to observe that any powers of inducing sleep were manifested. From my own clinical experience, therefore, I am forced to conclude that, although Codeia does not give rise to any of the disagreeable symptoms of morphia or the ordinary preparations of opium, yet, at the same time, it is devoid of their valuable properties; and, in fact, that it is a drug possessing slight, if any, known curative powers; whether it has any marked influence upon the spinal system, is a point perhaps worthy of consideration.

Another substance, Narcotine, a nitrogenised principle, contained somewhat largely in opium, deserves a few words. When first discovered, it was supposed to be the active ingredient of opium; to it was afterwards ascribed the stimulating properties of the remedy, but it has since been shown that both these assertions are altogether erroneous, and, that, if it possesses any remedial powers, it acts rather as a tonic and antiperiodic. The late Dr. Roots at St. Thomas's Hospital, demonstrated its inertness as an anodyne and soporific, and I may add that I have repeatedly given from ten to thirty grains of the Tartrate of Narcotine without the production of any symptoms.

The peculiar acid of opium, Meconic Acid, is likewise devoid of any detectable remedial or poisonous properties.

To what then can be ascribed the excess of power which opium possesses over its contained morphia, seeing that neither the codeia, the narcotine, nor the meconic acid exert any appreciable influence? We must remember that opium is very complex in its composition, that it possesses many other alkaloids and neutral principles, whose action on the system is not understood; and besides these, there always exists in opium a considerable quantity of resinoid matter, and to this latter substance much of the difference between opium and morphia is doubtless to be ascribed.

These Resins, for they are numerous, are more or less soluble in water, especially if the solution be acid, as is the case with that of crude opium; they are also soluble to a much greater extent in spirit, and hence the various pharmacæutic preparations of opium are more or less impregnated with them. I have had several opportunities of giving these resins, and the symptoms exhibited have been giddiness, nausea, and strongly contracted pupils without any very marked sleepiness; in fact, many of the effects which at times render the administration of opium very objectionable. I should feel very inclined to attribute much of the difference in the effects of opium and morphia to the presence of the resinous matter in the former. I speak, however, with some diffidence on this point, knowing that all therapeutic observations require to be frequently repeated before the results can be confidently relied upon.

Having premised these few remarks on the constitution of opium, and on what is really known of the action of its several constituents, we are now better prepared to discuss the preparation contained in the British Pharmacopœia. You will observe, and, perhaps, be surprised to find, that the only preparation of morphia introduced is the hydrochlorate, and that the acetate, a salt so long employed and so prized by some physicians, has been omitted. Why has this been done? We should certainly have some good reason for omitting this old-established remedy. Can we prove that it is unnecessary to retain it in the Pharmacopœia? I believe we can. As I do not know of any other clinical observations on the relative powers of the different salts of morphia except those which I have had opportunities of making, I must trespass on your time for the purpose of giving you the results which I have arrived at. There are many Medical Practitioners who certainly consider that each salt of morphia has peculiar powers; from what I have gathered

in conversation and otherwise, I find that some look upon the acetate of morphia as possessing the property of determining powerfully to the surface; upon the sulphate as being much more of an irritant than the acetate or hydrochlorate; upon the meconate (the salt existing in opium itself) as being milder in operation than the rest; and so on for the various other combinations of this alkaloid. On more closely questioning, however, the grounds upon which such assertions have been made, I failed in every instance to discover their validity; those who advocated the advantages of the acetate, had made no real or sufficient trials of the hydrochlorate, and the same remarks equally applied to the advocates of the other salts of morphia. I have carefully and clinically examined this subject, and will state my evidences and my conclusions.

I have been particular in selecting the subjects of these observations, and, among others, have chosen the man before referred to, suffering from neuralgia of the fifth nerve due to the pressure of an orbital tumour, and without exception I have failed to discover the slightest difference in the action of the acetate, hydrochlorate, sulphate, meconate, tartrate, or phosphate of the alkaloid; but in all these observations I have taken the precaution of giving exactly the same amount of the real alkaloid, not of the salt, for in the various saline combinations a different percentage of morphia is contained. In no one instance could the patient tell which salt was administered, or find any difference in the operation of the medicines. If we reflect for a moment, should not we naturally expect such a result? Suppose, for instance, we give half a grain of the acetate, can we reasonably look for any appreciable effect from the trace of acetic acid therein contained? and the same remark applies to the minute fraction of a grain of hydrochloric, sulphuric, meconic, tartaric, and phosphoric acids, contained in the ordinary doses of their morphia salts; given alone, these small doses of the acids would be absolutely inappreciable, even, I should imagine, to the eye of the homœopathist; how, therefore, can we expect that when in a state of combination their peculiar actions can be detected by the Physician?

If these statements be correct, why should we have in the Pharmacopœia more than one salt of morphia, and, granted that one is sufficient, our object should be to select a salt which possesses properties which peculiarly recommend it.

The Hydrochlorate has these qualifications. It is a well known salt; has been long employed; is readily manufactured; forms very beautiful crystals, of a definite composition; and is not liable to change on exposure to air; whereas the acetate is very difficult to crystallise, and is a salt liable to decompose, to lose some of its acetic acid, and to become much less soluble. These are the facts of the case, and probably the consideration of such led to the rejection of the acetate of morphia from the British Pharmacopœia.—*Medical Times and Gazette*, March 26, 1864, p. 333.

115.—ON LETTUCE AND ITS DRIED JUICE LACTUCARIUM.

By Dr. A. B. GARROD, F. R. S., &c.

[Neither the lettuce nor its dried juice lactucarium, which were contained in the London and Edinburgh Pharmacopœias have been included in the *material medica* list of the British Pharmacopœia.]

The lettuce, more especially the wild plant *Lactuca Virosa*, contains, as you are doubtless aware, a milky juice, which is exuded when the stem is punctured, and this exudation, when it becomes dry, forms a brownish substance, having a peculiar narcotic odour, not very unlike opium, and a very bitter taste; these tears or masses pass by the name of Lactucarium, a preparation in the Edinburgh and Dublin Pharmacopœias; an extract obtained from fresh juice of the plant, under the name of *Extractum Lactuce*, is in the London Pharmacopœia.

There is a very general idea that the eating of the lettuce by wakeful pa-

tients predisposes to sleep ; also that the preparations of lettuce have powers of allaying irritation, such as troublesome cough and so forth ; and the Lactucarium was thought to possess all these properties in an exalted degree, and has been frequently substituted for opium for patients in whom this latter medicine produced disagreeable symptoms.

Have these preparations any remedial powers which entitle them to a place in the *Materia Medica* ? This is a question which I will endeavour to answer, or at least I propose to lay before you certain facts or results which I have recently obtained in the clinical investigation of the action of these medicines. In arriving at these results, I have selected patients either suffering from want of sleep or labouring under spasm, more especially spasmodic cough, or individuals afflicted with painful disorders. The usual dose of Lactucarium, or of the Extract of Lettuce, is, I believe, from five to ten grains. I have carefully observed the action of such doses, but failed to find any influence either in producing sleep, allaying spasm, or alleviating pain. I afterwards gradually increased the amount of the preparations until at last as much as sixty grains of Lactucarium or of the Extract of Lettuce were administered at a time ; and these doses have been repeated three and four times during the day. In no one instance did the Lactucarium or Extract of Lettuce produce any direct tendency to sleep, nor in cases where pain was present was relief obtained. These observations were repeated frequently at different times, and on several patients, male and female. At first, on mentioning these results, I was told that the preparations I made use of must be faulty. To assure myself on this point, I made further trials with drugs which I felt sure were the best that could be obtained ; but the results of these further observations were exactly the same as those obtained at first ; and hence I cannot help doubting the value of Lettuce in the treatment of disease. It is supposed by some that Lactucarium may be usefully employed in cases where the stimulant effect of opium is objectionable. That it is devoid of the injurious effects of opium I am quite willing to concede, but that it possesses the valuable properties of that medicine my own clinical observations lead me to question.—*Medical Times and Gazette*, March 26, 1864, p. 334.

116.—ON CERTAIN ABUSES OF CAUSTICS.

By Dr. JAMES MORTON, Lecturer on *Materia Medica*, Anderson's University, and Surgeon to the Glasgow Royal Infirmary.

[Dr. Morton considers that the use of caustics is often abused, and he thinks such errors may frequently be traced to directions contained in the works of some of the leading writers of the day. We find them frequently employed in some diseases affecting the whole system, over which caustics, as such, can have no influence whatever.]

In common inflammation of the fauces, popularly known as sore-throat, and usually ascribed to cold as a cause, and whose symptoms I do not take time to enumerate, presuming that no one can mistake it, surely the employment of caustics cannot be said to be requisite. But besides being unnecessary, there is the additional objection that it is the means of inflicting a very considerable amount of pain. The disease will speedily disappear, if left to itself, or treated by soothing agents. Should suppuration take place, the possibility of the caustic application producing an earlier evacuation of the pus must be admitted. This, however, must be regarded as an accidental circumstance, as the caustic is not employed with this intention.

Very much the same may be said in respect to ulcerated sore-throat, except that in addition some mild alterative may be required, and a caustic application can only rarely, if ever, be necessary to repress prurient granulations, as in other parts of the body.

In regard to the three eruptive diseases, measles, scarlet fever, and small-pox, in all of which the throat is so apt to become affected, it is difficult to

speak so as to avoid misconception. When a slough forms upon the fauces, the part is often diligently assailed by the over-zealous practitioner, in the hope of thereby arresting the sloughing process; and when it ceases to extend, he is thought to have succeeded, and he plumes himself and is praised by others accordingly. I have no hesitation in affirming that this gratulation is often misplaced, and that the slough would have been smaller, and would more speedily have disappeared, had no caustic application been resorted to. This is not unfrequently exemplified in the treatment of scarlet fever, in which the mucous surface of the throat often suffers severely. Almost every one who has seen much practice must have witnessed cases of this severe throat complication occurring in children, not infants, who have obstinately and perseveringly, and with success, resisted all attempts to cauterise their throats, or even to touch them. In very many instances these do as well as, or better than those who may have been subjected to the ordeal; and the former are often as severe in the character of the attack as the latter. The more rarely, therefore, that we employ caustics in such cases, the better for our patients, and the more pleasant will be our treatment. All the local applications may be of a soothing nature, and it is not our present duty to discuss the constitutional treatment. (It may here be proper to remark also, that the ectrotic treatment of small-pox by nitrate of silver is a topic foreign to the object of this paper.) Some have an idea that active treatment of the local complication has a powerful influence over the constitutional affection; or, in other words, that the speedy removal by caustic applications of the morbid exudations from the situations upon which the disease seems to fasten in its greatest intensity, is of the very greatest effect in counteracting the deleterious action of the morbid poison upon the general system. This notion (it is scarcely entitled to be called an opinion) will not be maintained by many, and is such an untenable position that it does not seem to be necessary to attack it. An opposite mode of reasoning is taken by the majority, viz., that the severity of the sytemic poisoning has much to do with the intensity of the local manifestations of it.

After what has now been said with more especial reference to scarlatina, it is not requisite to say much respecting measles and small-pox. Affections of the throat are not so common in these two varieties of the exanthemata, and the objections already urged may apply to rubeolous and variolous cases in which the throat is found to suffer.

In the disease now styled diphtheria the use of caustics, as they are too often employed, is, in my opinion, productive of the most disastrous consequences. All the symptoms of this malady indicate the presence of a general toxic agent, probably an epidemic poison, and the prominent symptoms are those of debility, the throat affection coming on insidiously, often unperceived for a time, often with little or no pain, and a slight degree of swelling, though in some cases the tumefaction in and around the throat is very considerable. The chief indication is to support the strength; another important though subsidiary one ought to be, to avoid measures calculated to add to the existing local complications. It is a custom with some, I hope not with many, to divest the fauces of the whitish leathery covering which forms upon them, literally to dissect it off, and then to apply the solid nitrate of silver or some liquid caustic freely; and not only so, but to repeat this process daily, or as often as the adventitious membrane reforms, and in the belief that they are only doing what is absolutely necessary towards giving their patient the best chance of recovery. This line of practice I regard as a woeful mistake. It seems to me that, by so acting, the surgeon is diligently endeavouring to undo all that nature is attempting to effect towards a spontaneous cure of the malady. Surely no one imagines, that by tearing the exudation off the fauces, he will prevent its extension into the larynx and trachea. Such a procedure seems to me more likely to promote the dangerous progress of the false membrane, to use a phraseology now somewhat antiquated. To prevent misconception, let me add that no one can object to the removal of sloughy matters flapping loosely in the pharynx.

The following history may be taken for what it is worth. I freely admit

that it would be rash to use it as the foundation of any argument *pro* or *con* :—

One of the children of a family in this city presented symptoms of well-marked diphtheria, and was treated on the mild or soothing plan—namely fomentations, wine and nourishing food. The next younger child was at this time removed by a relative to a not unhealthy locality a few miles from town, took diphtheria, and there was treated by the application of caustic and the use of mercurial purgatives, with blistering; the result being fatal. The same might have been the termination under any treatment; yet this history is suggestive of inquiry. It is right also to add, that the child which recovered was previously considered the most delicate in the family.

A recent writer has said that the more copiously lymph exudes upon the fauces and larynx, the less likely is it to be deposited along the interior of the bronchial tubes in croup and diphtheria; and the inference from that is that in such instances tracheotomy is more likely to succeed. This assertion we may not all admit, and, at all events, it has not been established as a fact; but though it were, caustics are not used for the purpose of promoting the deposition of lymph, neither will their free application render the success of tracheotomy more probable.

In the belief, then, that caustics in all forms are injurious in diphtheria, I would venture to recommend their complete abandonment in the treatment of this peculiar but perilous disease. I am aware that more heroic treatment still has been proposed in diphtheria, such as excision of the tonsils (as a certain method for removal of the false membrane), tubing of the larynx, and tracheotomy, so as to get under this exudation. It is foreign to my purpose to consider such at present; but to show that I do not stand alone in my opposition to the use of strong caustics in diphtheria, the liberty of quoting the following from Dr. E. Headlam Greenhow's work on Diphtheria, may be accorded me. "Local treatment," says Dr. Greenhow, "applied to the throat internally, has been almost universally adopted in the treatment of diphtheria; and though I by no means deny its value when judiciously employed, I am sure much mischief has been produced by its indiscriminate use, especially by the frequent tearing away of the exudation by probings or similar contrivances for the application of nitrate of silver or of strong caustic solutions. Observing that removal of the exudation, and the application of remedies to the adjacent surface, neither shortened the duration nor sensibly modified the progress of the complaint, but that the false membrane rarely failed to be renewed in a few hours, I very soon discontinued this rough local medication to the tender and already enfeebled mucous membrane. The propriety of this course became evident at the very first post-mortem examination I had the opportunity of witnessing, and has been confirmed by all my subsequent experience. In the first place, the application can but rarely extend to the entire diseased surface; and in the next, the subjacent tissues are so deeply involved in cases of really malignant diphtheria, that any application to the surface of the mucous membrane could apparently exercise no beneficial influence upon the disease. The same observation applies with even greater force to the indiscriminate use of strong solutions of chloride of zinc, or of Beaufoy's solution of chloride of soda. The only instance," he continues, "in which much benefit can be expected to arise from the local application of escharotics, is when the patient is seen at a very early stage of the illness, while the throat is simply inflamed, or the exudation, if it be already present, is circumscribed, fully in view, and surrounded by healthy tissue." For such a case he recommends the tinct. sesquichlor. ferri, slightly diluted, evidently referring to slight cases. In such also he uses the same tincture as a gargle, and recommends milder and more soothing detergent applications, merely to cleanse mouth and fauces; and ends by stating that tepid water may answer the purpose equally well.

The opinions of Dr. Jenner, of University College, are also well worthy of consideration, though he does not go the length of altogether abandoning caustics. He says that he has formed two decided opinions as to the value of local applications, from the cases he has seen treated by others, which are

—1st, "That the single efficient application of a strong solution of nitrate of silver—a scruple to a drachm of water—frequently stays the spread of the exudative inflammation; but that, on the whole, hydrochloric acid and water in equal parts more frequently attain that object. 2nd. That the repeated application at short intervals of these strong local remedies is injurious; I think I have seen serious evil result from their application two or three times a day." A page further on, he remarks—"I am sure I have seen severe inflammation of the pharynx kept up by the repeated daily application of irritants, used to cure the disease which they themselves were occasioning." And again, "I have never seen these powerful topical remedies of use while the parts were much swollen, bright red, and covered with mucus; nay, under such circumstances, I have seen them do harm. Do not tear off the false membrane; to do that is to commit a decided blunder. I have seen it done repeatedly, but never with good effect, and sometimes with decidedly bad results." We find the same opinion mentioned in Bretonneau's "Memoirs on Diphtheria," translated by Dr. Semple, where it is said—"The authors of the sixteenth century agree in reprobating the forcible removal of the false membranes, and also scarifications, together with all roughness of frictions and applications. I have had occasion several times to convince myself of the justice of these precepts, and I have seen the pellicular inflammation aggravated by all kinds of mechanical irritation. When the disease is not arrested in its progress by two energetic applications made at intervals of twenty-four hours, and the signs of the affection of the air passages begin to be manifested, this local treatment offers very uncertain chances of recovery." So much for the antiquity of the idea regarding the non-use of irritating applications.

However improbable it may be that I shall be met with the objection that my remarks are directed against a practice which does not now obtain, it may be right to state that any one who glances at the weekly and monthly medical journals of the day, will at once be satisfied that such is not the case. In the Edinburgh Medical Journal for October last, there is a lengthy article upon diphtheria, the writer of which advocates the vigorous use of caustics, even to the dropping of it into the larynx by a tube, and congratulates himself on thereby obtaining complete command of the symptoms. It is also worthy of remark that this practitioner uses iodide of potassium in ordinary doses, a mode of treatment previously proposed and employed by Mr. Wade, of Birmingham. The cases thus treated did not speedily arrive at convalescence—not so speedily as most recoverable cases of diphtheria usually do—and it may possibly yet occur to the writer that he may accelerate his cures by confining his medication to the latter remedy, and entirely excluding the caustics. The same writer mentions a family in which he was attending one diphtheric patient, where there were other five inmates similarly affected in some degree; and when describing their symptoms and treatment, he says—"I had cauterised and sponged with the caustic solution their throats daily, and I had ordered to be taken, for three or four days, ten drops of the tincture of ferri twice daily. Nevertheless, the inflammation of the throat and the effusion of lymph kept slowly but steadily advancing." In a subsequent page, when speaking generally of treatment, he remarks—"If the patient, when I was called, was free from fever, but had the throat affected, I contented myself with touching the lymph with the caustic, and sponging the throat, fauces, and glottis with the same solution, and gave the sol. iod. pot. from three times daily to every two hours, according to the urgency of the case." And again, "Where there was the slightest hoarseness, I never failed also at once to drop the caustic solution into the windpipe." Surely a striking example of the *nimia diligentia medicina*, and the steady advance of the inflammation and effusion would surprise no one but the writer.

A careful attention to the current medical literature of the day, will convince almost any one that in some cases recovery is not to be ascribed to the local means employed, but rather that it takes place in favourable cases in spite of these means, which can only have the effect of protracting the period of disease, or delaying convalescence. It is perfectly well known to me, that

in holding such opinions I do not stand alone, though I fear they are held and acted upon by but a few, by a minority.

While writing this paper my attention was directed, as previously noted, to a pamphlet entitled "Notes on Clinical Medicine" by Dr. W. F. Wade, of Birmingham, the first part of which relates to diphtheria; and after stating that "local treatment exerts no known influence upon the general course of specific fevers," he continues in a succeeding page as follows:—

"It is contrary to the ordinary rules of our art to interfere with the local development of blood poisons, except for special reasons."

"The faucial exudation of diphtheria is to be considered as the local manifestation of a general disease."

"Interference with it will not prevent its reproduction, nor will it prevent laryngeal complication, nor will it prevent the supervention of grave constitutional disorder. It is, besides, exceedingly irksome to young patients."

"We are justified in interfering with the throat exudation when there is excessive fœtor, or when it is so copious as to interfere with respiration or deglutition—not otherwise."

These opinions coincide so exactly with my own in request to local management, that I have taken the liberty of quoting them; and it may be added by the way that Dr. Wade recommends, for constitutional treatment, iodide of potassium, iodide of iron, and bichloride of mercury, with bark, as eliminants of the blood-poison.

Lastly, in reference to syphilis less requires to be said: for, while it cannot be doubted that caustics are still too frequently employed, and productive of considerable mischief, yet it must also be remembered that their frequent and indiscriminate employment is not sanctioned by the best authorities on the treatment of this disease.—*Glasgow Medical Journal*, Jan. 1864, p. 409.

117.—ON CARBOLIC ACID.

By Dr. JAMES WATSON, Physician to the Edinburgh Royal Infirmary.

[Although carbolic acid has been long known it has only been of late used in medicine. We refer our readers to a most able paper by Dr. Grace Calvert, of Manchester, in *Retrospect*, July to Dec. 1863, p. 256.]

It is an external agent—as a disinfectant, antiseptic, and otherwise, that it is most highly spoken of. Mr. Oscar Clayton of London, and Mr. Turner, honorary surgeon to the Manchester Infirmary, have successfully used it as a caustic in the treatment of carbuncle and of foul sloughing sores. Mr. Turner prefers it in the treatment of severe cases of diphtheria to other caustics, as its action does not generally extend below the surface of the parts affected. Mr. Campbell De Morgan, Middlesex Hospital, states that carbolic acid dissolved in glycerine or glacial acetic acid has been found by him very beneficial in the treatment of lupus; and Dr. Whitehead treats lupus successfully with an ointment made of carbolic acid,—one half-drachm of acid to one ounce of spermatc ointment. Several respectable surgeons speak favourably of its use as a lotion—one part of the acid to forty parts of water—in all kind of fetid ulcers, gangrenous and offensive sores; and in necrosis it is said to promote the exfoliation of the dead portions of bone. Dr. Calvert states that it is the most powerful preventive of putrefaction with which he is acquainted. He also states that it acts as an anti-ferment, and that he has proved this on an extensive commercial scale,—that it prevents the conversion of tannin into gallic acid and sugar. He also tells us that a few drops of this acid added to a pint of fresh urine will preserve it from fermentation or any marked chemical change for several weeks.

Carbolic acid is soluble in any quantity of glycerine, in twice its bulk of glacial acetic acid, in forty times its bulk of water, and forms with a solution of sugar a nice emulsion.

I shall now proceed to record some observations I have made as to its action in the Royal Infirmary.

I have tried carbolic acid as a disinfectant lotion in two cases in the surgical wards. In the first case, the patient, a young girl about thirteen years of age, was suffering from a sloughing ulcer extending from the knee to the ankle. There was a large amount of discharge of the most fetid character. On the application of the carbolic acid as a lotion, one part of the acid to forty of water, the very disagreeable fetor was completely destroyed. Nothing could be more satisfactory than the complete manner in which the disgusting odour was dissipated. The lotion also acted as a stimulant to the part, which to a certain extent took on a healthy action, but in consequence of the amount of discharge exhausting the already weak constitution of the girl, amputation was deemed her only chance of recovery, and this was accordingly performed.

The other instance in which I had carbolic acid applied as a lotion was in the case of a young man who had amputation performed at the middle of the thigh for malignant disease. Very soon after the operation, sloughing set in, accompanied with a fetid discharge. On the application of the lotion, the fetor, as in the first case, was most completely destroyed, the discharge lessened, the sloughs separated, and the parts beneath looked healthy. The lotion continued to be used for several days with the best results as far as its disinfectant and antiseptic qualities were concerned, but unfortunately the patient died, never having thoroughly recovered from the shock of the operation.

I next, along with Dr. Smart, made a number of experiments on urine, to test the antiseptic property of carbolic acid, with the following results:—

First Series of Experiments.—1st, To ten ounces of diabetic urine I added no carbolic acid. After standing for five weeks I found a dense (one inch deep) fungoid mass on the surface of the urine, and the urine having a well-marked odour of decomposition.

2nd, To ten ounces of diabetic urine I added one grain of carbolic acid. At the end of five weeks there was on the surface of the urine a fungoid scum a quarter of an inch deep, but no odour of decomposition.

3rd, To ten ounces of diabetic urine I added three grains of carbolic acid. At the end of five weeks there was no fungoid mass or scum on the urine, which had a perfectly sweet odour.

4th, To ten ounces of diabetic urine I added five grains of carbolic acid. At the end of five weeks no fungoid mass on surface. Urine sweet, but with a perceptible odour of carbolic acid.

Second Series of Experiments.—To five specimens of diabetic urine of ten ounces each, I added the following quantities of carbolic and at the end of three weeks the following were the results:—

1st, Of carbolic acid one grain. Urine perfectly free from fungoid mass, and odour perfectly sweet, but there was found a slight precipitate.

2nd, Of carbolic acid two grains. Quite free from fungus, but having a deposit, and urine slightly hazy. Free from odour of decomposition.

3rd, Of carbolic acid three grains. Deposit, with the urine hazy, but quite free from decomposition.

4th, Of carbolic acid four grains. Urine quite translucent, with a deposit less in quantity than in the other quantities of urine, and odour of carbolic acid perceptible.

5th, Of carbolic acid five grains. Urine perfectly translucent and quite free from deposit. Odour of urine sweet, with that of the carbolic acid distinct.

These two series of experiments conclusively show, that carbolic acid is a decided antiseptic, that a very small quantity prevents for several weeks the odour of decomposition,—that a slightly increased quantity diminishes the amount of deposit, and a very little more entirely prevents any recognisable change in the composition of the urine from taking place.

I shall next draw attention to a case of favus treated with carbolic acid in the Clinical Wards.

Peter Russell, aged fourteen. On admission, head was found completely covered with favus crust, and on microscopic examination the parasite—*achorion Schönleini*—peculiar to this disease was discovered. The boy's head

was shaved and then poulticed for two days. A solution of carbolic acid in glycerine (in the proportion of one part of the acid to twenty-five parts of glycerine) was then ordered to be applied to his head, morning and evening, and to be continued daily.

Before the application of this lotion the entire scalp was of a crimson colour, but under this treatment the colour of the scalp became gradually fainter, and at the end of five weeks distinct tracts of scalp quite free from redness were found, and the remaining parts were much paler in colour. The hair is now growing vigorously, and over the whole surface of the scalp not a trace of the favus crust can be detected.

The boy's general health is much improved since coming into the hospital.

So satisfactory was the result obtained in the last reported case considered, that the same treatment is now being pursued in another case of favus, with this difference, that in this instance the lotion is stronger, being composed of one part of acid to fifteen of glycerine.

The young man, Peter Ward, aged seventeen, has had the disease for nine years. On admission his head was covered with favus crust. The head having been shaved and poulticed, the above lotion was applied as in the former case, morning and evening. After being treated in this way for fourteen days the scalp was seen to be much less red and the hair growing vigorously. At the roots of the hair there are still small circumscribed patches of crimson scalp, but no trace of crust is to be found over the entire head.—*Edinburgh Medical Journal*, Jan. 1864, p. 625.

118.—THE CHEAPEST DISINFECTANT.

By ROBERT DRUITT, Esq., London.

I ask permission to recommend to the readers of the *Medical Times and Gazette* a strong solution of iodine in methylated spirit, as a safe, cheap, and efficient disinfectant. Iodine is 8d. per ounce wholesale, and methylated spirit 4s. per gallon; therefore, supposing 4 oz. of iodine dissolved in a gallon of spirit cost 6s. 8d., allow a like sum for bottles, corks, and profit, and we ought to get for 6d. about 6 oz. of the tincture.

The advantages of Iodine are (I believe it was first proposed as a disinfectant by Dr. Richardson) that it purifies solid surfaces as well as Condyl's and Burnett's liquids; and that it is also volatile and acts on the air like chloride of lime, without its abominably nauseous odour.

In every house where there are sinks, closets, &c., internally, it is a good plan to disinfect them thoroughly from time to time in hot weather. Dustbins should be treated with something to neutralise the emanations of the decaying vegetable rubbish thrown into them. When there is sickness in a house, and a *chaise percée* has to be used, it is very disgusting to have the contents taken without any precaution and allowed to waft a perfume all over the house. For all these purposes, for which a liquid disinfectant is convenient, I believe my professional brethren will find the tincture of iodine the most handy and effectual.—*Medical Times and Gazette*, May 21, 1864, p. 581.

119.—ON BROMIDE OF POTASSIUM.

By DR. A. GARROD, F. R. S.

On the first introduction of Bromide of Potassium, it was thought to be very analogous in its action to the Iodide, although somewhat less powerful; but little, in fact, was known about its powers. About nine years since I made some extensive trials of this medicine, chiefly in hospital practice, and found that, in certain cases of eruptions of the skin, as in syphilitic psoriasis, it acted as a curative agent, or, at least, patients when under its influence

lost the affections under which they had been suffering. I was induced to give the bromide in these cases as the patients were intolerant of the action of the iodide. I discovered, likewise, that Bromide of Potassium, when pure, did not give rise to any of the symptoms to which the name of Iodism has been applied. I did, indeed, occasionally notice these symptoms, but this led me more carefully to examine the salts which had been dispensed; and it was ascertained that, with one or two exceptions, the Bromide, as sold in London, contained notable quantities of the Iodide of Potassium. After this, I took precautions to have the Bromide pure in all my observations upon its action, and the results I arrived at may be thus summed up:—

1. It produces none of the irritation of the mucous membranes of the nose and fauces—no coryza.

2. Some patients experience a peculiar sensation of dryness of the throat and neighbouring parts.

3. When given in large medicinal doses, sleepiness or drowsiness, and dull headache were occasionally noticed.

4. When administered in very large amounts, some loss of power was noticed in the lower extremities, which passed off when the medicine was discontinued.

5. The therapeutic action was decidedly what may be termed alterative—that is, it relieved certain forms of chronic disease, as syphilitic skin affections.

6. No marked action was observed upon the skin or kidneys.

Soon after these observations had been made, Sir Charles Locock stated that he had found Bromide of Potassium useful in hysterical epilepsy, and in other nervous affections connected with uterine disturbance, and I was from this led to make further trials of the remedy, and have found that—

7. Bromide of Potassium exerts a most powerful influence on the generative organs lowering their functions in a remarkable degree.

8. It is a remedy possessing most valuable powers in diseases dependent on, and accompanied by, excitement or over action of the generative organs; and hence it may be given with advantage in nymphomania, priapism, certain forms of menorrhagia, especially that occurring at the climacteric period; as likewise in nervous convulsive diseases dependent on uterine irritation; and lastly, in some ovarian tumours.

9. It appears to produce an anæsthetic condition of the larynx and pharynx; and hence has been usefully employed in examinations and operations of these parts.

Bromide of Ammonium has been lately proposed more especially for the production of the last-named effects, but I am not aware that it possesses any powers superior to those of the salt of potassium. The bromide of potassium may be given in doses of from five grains to ten or even fifteen grains to the adult.

It is curious to observe and compare the physiological and therapeutic powers of three salts so analogous to each other in a chemical point of view—namely, the Chloride, Bromide, and Iodide of Potassium, the first producing but little action unless given in large quantities, probably from its being a normal constituent of the body; the second, the bromide, abnormal to the economy, or existing only in infinitesimal amounts, acting especially on the nervous system; the third, the iodide, also abnormal to the body, having its influence more especially directed to the mucous membranes and secreting organs. The investigation of such actions in relation to the composition of the substances administered may probably one day afford some clue to the comprehension of the effects of remedies.—*Medical Times and Gazette*, March 12, 1864, p. 276.

120.—ON CHLOROFORM AND ITS SAFE ADMINISTRATION.

By Dr. CHARLES KIDD, London.

The increasing importance of rendering the administration of chloroform and other æsthetics quite safe makes it very desirable at present that the profession should enlarge the circle of its discussion on this subject. It seems such a matter of practical detail and observation by hospital surgeons, rather than of abstract physiological inference or experiment on animals (not under the same emotions and influences as hospital patients), that the author deems it of essential value that the general impression of the Fellows of this society should be obtained.

The large number of fatal accidents indeed of late (so much to be deplored) invests the subject with a degree of serious interest that it had scarcely attained in former years. Several cases have occurred where the surgeon has been put through the painful ordeal of a long cross-examination by a non-medical coroner and jury as to the exact amount of chloroform that is considered an over-dose for adults, as also the necessity of attending to the condition of the heart or not attending to it, the culpability of not watching the pulse, or neglecting some form of special inhaler and the like, ending in a verdict amounting to a censure for malpraxis!

Whereas on these points the Fellows of this and other kindred societies are themselves yet undecided,—what would be an over-dose for one patient being of no effect on another, and the culpability of not attending to the pulse (as to which there was recently a violent controversy in the morning newspapers) being rather an error of hasty generalisation when chloroform was first discovered.

One coroner and a London jury indeed, arguing out of a pile of medical manuals and books of surgery (laid on the table of the court by the coroner), especially as to the words "cardiac syncope," prolonged the medical cross-examination for some two hours on these points to the serious detriment of the surgeon's position in his district; and this, added to the misery of having the dead body lying in a surgeon's own house, has painfully impressed the author that such scenes must be presented by a more exact decision of the profession as to inhalers and their use, the real value of the pulse as an indication of danger, the danger of valvular disease of the heart, so dwelt on in books, the best mode of resuscitation in accidents, &c., &c. "Granting or not granting that the pulse is essential or comes from the right, not the left ventricle," was the charge to the jury, "we have sufficient evidence the pulse was neglected, nor was the heart examined by the stethoscope, as the books say it ought to have been, nor was the Marshall Hall ready method put in force, which is described in the *Lancet* as infallible, nor was a silver inhaler of Snow's used, so that great blame is attached to the surgeon."

But it would be about as rational to blame surgeons for the clot in the heart in a case of slow death by croup, or designate it heart disease, as to have said in this chloroform case it was one of heart disease. Yet this was the verdict, and it was generally acquiesced in by many journals with due censure on the medical man. We know, indeed enough of such verdicts and medical trials of late to be aware that "one such victory" and one other chloroform accident would have been his ruin. It may occur to any other surgeon any day, the surgeon suffering from no fault whatever of his own, but from the uncertainty everywhere existing as to anæsthetics.

The truth in these conflicting opinions, and uncertainties and crossroads of the science of anæsthetics, the author believes, has been in reality only slowly arriving. Chloroform is a very new subject. It has been remarked by Mr. John Stuart Mill that in all such new inquiries *hasty* generalisations are very common—the rule, in fact, of inquiries—the one particular or last of a series, or the one most striking of a series of apparent causes of an event, is almost certain to be seized on by the mind as its sole efficient cause, though it may in reality be without appreciable effect at all. Thus, it was

observed at first that some patients died with the chloroform on a napkin to the face; the result and cause were at once generalized, the napkin caused the death. Again, the pulse (as more easily watched than the diaphragm) was noticed more easily to stop, it was a more striking phenomenon in the operating-room and its hurry. Hence the popular idea of the vast necessity of *watching the pulse*; but it is now found to be as rational to propose to stop a storm at sea by putting up a storm signal. The pulse is in reality only a negative indication of danger, which danger has its real source in the diaphragm and respiration, not the pulse.

Surgery and medicine abound with errors of this kind. Our literature of a periodical kind as to new discoveries has a kind of vested interest in the fallacy of reasoning *post hoc ergo propter hoc*. This is exactly what has taken place in watching the pulse, and coroners censure those who do not do so. It was simply the one most prominent of a series of supposed causes, this stoppage of the pulse.

The fashionable idea or dogma of fatty heart was then adduced as a further explanation; but it has never been shown or demonstrated in a single one of about two hundred deaths now from chloroform that fatty heart or diseased heart existed at all, and also in thousands of cases that valvular disease of the heart does not contraindicate the use of chloroform.

The true explanation of these hasty generalisations as to the pulse and heart, the use of napkins, inhalers, stethoscopes, &c., lies deeper.

It was pertinaciously held in journals that the pulse in these cases is stopped by paralysis; and when it was shown that the left ventricle from which the pulse comes is unaffected in deaths from chloroform but the right ventricle always engorged, then the coroner's jury was told the pulse of course was influenced by or came from this side, left or right, it made no matter. The author has heard this said in court!

The true interpretation of the facts is in reality this. The heart's action is stopped, and its right cavities engorged, not on account of the influence of chloroform on the heart, but its influence on the diaphragm and lungs. *The pulse, if carefully watched, only stops after the diaphragm stops.*

If in one hundred experiments on dogs, rabbits, &c., poisoned by chloroform, we always find this state, *the right cavities engorged*, the statistics (as perhaps all medical statistics) are as finger-posts at the cross-roads of the plate to be explored, they point the direction in which what we are seeking lies, but they are not the thing itself. The late Dr. Snow took them for the latter. The statistics said "cardiac syncope," or engorgement from failing action of the heart. We now find, however, that this is not true, an anterior condition had been overlooked—viz., that this gorging of these cavities is only a species of passive back current or *remora*, caused by the lungs and diaphragm, in a state of paralysis or deep narcotism, not receiving the blood from these cavities of the right side. The diaphragm in reality is the first muscle to stop.

The heart, as a matter of every-day observation in experiments, so far from being paralyzed, is passively dilated, but strives actively, but in vain, to push forward into the lungs the large volume of blood arriving through the cavæ at the auricle, and once we establish good artificial respiration the right side is unloaded.

The heart, notwithstanding all the popular fallacies, the author believes is decidedly the last to be paralyzed or to die, the true *ultimum moriens*; and since these views have made progress in medical schools, accidents are more easily prevented; indeed, some first class physiologists now explain the deaths by the opposite of paralysis (Dr. Snow's syncope)—namely, by over-stimulation of the heart!

The cardinal point of so much value in the modern practice of administering chloroform is to watch the breathing of the patient.

The condition of the pulse is negative, or more correctly, it is a reflex indication that respiration is right.

Both are, so to speak, opposite swings of the pendulum on which the regularity of the machinery of life depends during the surgical operation under

chloroform, the essential force on the pendulum being the respiration and active state of the diaphragm!

With these general principles as a guide, a few new facts observed of late in clinical practice may be submitted to this Society.

And first, it is most desirable that the patient's head and neck should be free and well exposed, and the top of the window, if possible, open in all operating-rooms to allow ozone or electricity in the open air to get to the lungs.

2. Again, it is of little advantage to strive to rouse up a flagging pulse but through the lungs, by fanning with a lady's fan, rather than the mistake of dashing cold water, which, in fact, depresses the heart.

3. Next, as to the state of the brain under chloroform. Surgical operations are always performed better in the morning than evening. After a night of refreshing and reparative sleep, there is in the morning less chance of nervous exhaustion or sinking. The snoring sometimes noticed under chloroform, the author believes he has observed it to be a result or measure of exhaustion or long continued pain and sleeplessness. The patient goes asleep for relief of pain. This is often very noticeable in midwifery practice. Sleep is not at all the same as anæsthesia. The author thus has seen boys operated on for stone who suffered severe pain for several days previously, but immediately on the chloroform anæsthesia taking effect, to fall fast asleep and snore, and remain in this state for hours. It is probably a condition of deep sleep.

There seems no doubt in delirium tremens patients, or mania cases, a like state of sleeplessness or exhaustion without sleep exists which precludes the safe use of chloroform; but if sleep has been once obtained then chloroform comes in very well. Thus a man of drunken habits may sustain a bad compound fracture, and when brought to hospital primary amputation under chloroform be decided on; excited soldiers in the recent battles in America who have not slept for several days, have come under care with such fractures; but in such cases sleep for a night or two previous to the operation and chloroform is very desirable. The most marked of all contraindications to chloroform is not diseased heart, but delirium tremens or sleeplessness. Many deaths signed "fracture" in the Registrar-General's returns occur from neglect of this point, and operations performed as primary where too much exhaustion or shock exists; the chloroform, especially if carelessly administered, being the last straw on the camel's back under which the patient sinks.

As to the administration, the author submits (4thly) as the result of much observation in hospitals, that it is desirable the peculiarities of chloroform should be more widely taught and known amongst students and in general practice, as much of the panic in coroners' courts about deaths arises from want of skill in these details. Thus, had hernia cases strangulated come to hospital ten or a dozen or twenty miles to be operated on, as the author has seen them, but the hernia reduced at once without operation under chloroform, the rural practitioner admitting he was afraid of chloroform. He has heard a melancholy argument often urged in one hospital, that as "our grandmothers" did without chloroform, so ought we; and in another hospital the students are occasionally told chloroform is like the philosopher's stone soon to be forgotten, and not worth serious study or notice. It is unpleasant to dwell on such points, but that in spirit they are too much acted on, and in coroners' courts especially much mischief is the result.

5. In medical practice, in such diseases as epilepsy, puerperal mania, convulsions in children, tetanus, asthma, &c., as also in midwifery practice, where chloroform is a true charity to agonized mothers, it has been and continues to be very unpleasant to meet the objections just noticed. If our predecessors had not chloroform and got on very well, neither had they vaccination nor railways, which we could just as soon ignore as anæsthetics. In tetanus chloroform has not been used as often as it deserves to be. It is to be feared, too, that now quackery is making way as to chloroform where legitimate inquiry fails.

6. Sulphuric ether as an anæsthetic has been carefully studied by the author. It is very valuable as an agent to be held in reserve to give alternately with chloroform. It appears to set up a new action in the lungs when the pulse is inclined to stop, and restores the pulse in a very marked manner through the lungs.

In fine, it appears from abundant evidence, and what has been already stated, that if in practice we are to be saved from the undeserved censure of the public, or coroners' juries, or the public press; if in practice we are anxious (as surely every one is anxious and eager) to lessen the number of these melancholy accidents; if the truth, as already hinted, has had many prejudices to do battle with, and has been but slowly arriving as to chloroform;—that we must still keep on a level with the advancing series of physiological and clinical facts.

No doubt chloroform to some is a very trivial thing, anybody may apply it hundreds and thousands of times and give its dangers not even a passing thought; anybody might likewise, with similar logic, take charge of an express train on a railway, it will go of itself; but in case of danger looming in the distance, it is a different thing to know exactly what to do!

There are two hundred deaths from chloroform recorded already, and perhaps twice or four times two hundred unrecorded, so that in reality it is not such a trivial thing. Some ideas or words, such as "cardiac syncope," "fatty heart," as the causes of death, as also the objections in the very highest places to chloroform in midwifery, or the argument as to our "grandmothers" and the like, all curious and suggestive things in their day,—are now like old coins, to be removed out of circulation as of no intrinsic value.

The utmost contradiction exists in books and schools and journals as to what is best to be done at the operating table in accidents. When have we to fear apnoea? What is the real value of ether? How does apnoea differ from syncope? What kind of inhaler is best? What is this "Faradisation" that has proved so perfect in restoring life? A few words of explanation of each the author wishes further to indicate, as well as a short abstract of the case, the more immediate subjects of this communication.

Any irritation of the special nerves distributed to the mucous membrane of one part of the larynx, according to some modern experiments of Schiff, Brown-Séquard, and Rosenthal, at once stops the action of the diaphragm, we have in such a condition some spasm of the glottis and a tetanic state of the respiratory muscles and apnoea. This has been demonstrated by pinching the nerve at its root. It is a nerve or pair of nerves not usually described in books, coming off from the eighth pair above the superior laryngeal, or even irritation of a like kind of the "recurrent" laryngeal, produces sudden closure of the glottis. This spasm, possibly excited by irritation of acid or acrid chloroform, or even a foreign body, such as vomited matters, or loose fibres from a piece of lint or rough napkin used as inhalers getting into a half-narcotised larynx, the author has sometimes suspected as the cause of fatal accident by apnoea. Even in an animal all but dead and restored again to life, for instance, by electricity, as Schiff has demonstrated, there is one point during the resuscitation, if one irritates these nerves, their "inhibitory" action, as it is sometimes called, is brought into play, there is instant spasm again, apnoea, and death. We are here evidently on very dangerous ground, corroborative of which it may also be mentioned that the author has heard Mr. Hilton, who has given such attention to the anatomy of this region, to state, in clinical remarks in the wards of Guy's, that surgical operations about the larynx and neck are peculiarly dangerous from the complexity of the nerves in this situation.

It is not intended by these complex studies of these nerves to frighten surgeons as to the complexity of chloroform administration, which is in reality one of the simplest things in the world. The danger from apnoea also occurs occasionally, when the hospital surgeon is absent, and, as a rule, in trivial surgical accidents and trivial surgical operations.

And first, as to the occurrence of apnoea.

What are the indications afforded already as to when we have to apprehend

the occurrence of apnoea? It is very singular, but no less true (it is an observation of Snow's corroborated by further experience), that it is really in perfectly healthy individuals, healthy adult men, and in the most trivial operations, where the constitution has suffered least, that we have to fear the occurrence of deaths from chloroform; for example, in healthy persons who have gone to a dentist to have teeth extracted, strong men who have walked to hospital to have a finger amputated, a catheter passed, a dislocation reduced, or, for example, a delirium tremens patient of bad stamina who has had any of these operations done for him. Accidents almost never occur in great operations.

There may be something faulty in the mode of administration of the chloroform in such cases, in the confusion of students in the out patient's department, or error in the dentist's assistant, who is usually most profoundly innocent of all about anæsthetics and the modes of resuscitation; but a more important element seems to be, that we have here a man in perfect and active life, active circulation in the brain, good reflex tone of his respiratory nerves—a man, in a word, with a large amount of vigorous life, which in a moment is extinguished by the chloroform. He requires, too, a very large quantity of chloroform to dull this sensibility; the man, himself, as the author has known, will take, unknown to the surgeon, also a large bottle of porter with gin to keep his courage up.

There are present also, in such a case, perhaps what are most dangerous, nervous exhaustion from anxiety or loss of food, sudden but perhaps intense anxiety about the accident or operation. He has got his finger crushed in machinery perhaps.

It is curious indeed that in other or the great operations of surgery, such as ovariectomy, amputation of the thigh, &c., the "law of tolerance" first noted by Miller is very observable; such patients are reduced and require a smaller quantity of chloroform.

Even as to sex there is the greatest possible difference on this point. Females bear pain better than males, and of some five hundred accidents of all kinds the proportion of fatal cases was at one time three to one of men as compared to women, and now it is about two and a-half deaths of men to one woman. No doubt some of this is due to the fact that men are more exposed to surgical accidents; but on the other hand, we have had now some sixty or one hundred thousand cases of midwifery under chloroform, and a series of hundreds of operations on the female organs, such as ovariectomy, vesico-vaginal fistula and the like, to put against this fact as to men, but still the average or proportion of two and a-half to one holds good. The deaths, too, are more frequent about the same age—20 to 40—as children are free, as well as old people, from deaths by chloroform, though used extensively amongst children. In women good respiratory reflex irritability saves them.

These statistics, no doubt, are yet too limited for the elimination of the one or great cause of death by chloroform; taken, however, with the previous clinical facts, and the admirable remedy which electricity has proved in hundreds of experiments on animals in restoring life, the statistics point to the direction where the danger lies. The author wishes to avoid hasty generalization, which created errors in the former induction from the facts as to cardiac syncope, heart disease, fatty heart, &c. We do not meet fatty heart at all in a single one of the cases recorded, nor is it likely to occur in young vigorous active men with bounding strong pulse, who are the usual victims of chloroform.

These statistics point the way, and it will be wise to adopt the lesson they teach. No doubt algebraic laws of "variables" would say we should have hundreds of thousands of cases to base an induction upon; but it may be open to doubt if such laws of variables are not rather an obstruction to practical medicine than an assistance.—*Dublin Medical Press*, May 18, 1864, p. 516.

121.—ON SCIATICA.

By Dr. HENRY WM. FULLER, Physician to St. George's Hospital.

In one class of cases sciatica is connected with sympathetic irritation, excited by long-continued loading of the bowels, or by the presence of crude irritating secretions in the primæ viæ. In many of these instances the patients have never suffered from gout or rheumatism, and there is an absence of symptoms indicative of hip disease, of renal irritation, or of general nervous irritation, as in the cases last mentioned. The skin is cool, the complexion is seldom pallid as in cases of rheumatism, the urine is usually clear and often pale, there is no pain in, or retraction of the testicle, and no pain in the course of the ureter. Further, the pain is usually felt down the course of both sciatic nerves, instead of being confined to one side, the tongue is furred, and the bowels are costive. In this class of cases the indications for treatment are obvious enough. It behoves us to act fully on the bowels, so as to rid them of all irritating secretions and of the hardened fæces which are often impacted in them. But ordinary purgatives are of little avail for this purpose. Experience proves that colocynth pills and senna draughts and saline aperients will induce free watery evacuations from the primæ viæ, but will fail in removing old accumulations in the bowels, and in relieving the patient's sufferings. The means by which this end must be attained are enemata of a stimulating character, opium followed by full doses of castor oil or croton oil, and the continued use of guaiacum. No purgative is more certain in its operation than guaiacum, and none can be more thoroughly relied upon for affording relief. Combined with sulphur in equal proportions, in the form of powder, it proves a never-failing aperient if given in half drachm doses twice or three times daily; and if administered only in appropriate cases, it proves one of our most trustworthy allies. You have seen me employ it so often in this hospital that it is scarcely necessary to direct your attention to it more particularly, but I will even detain you a few minutes whilst I recall the symptoms of J. S., aged fifty, who was admitted into the Fuller ward on the 5th of May. This man was attacked with sciatica of both sides six months before admission, and although the pain had varied in intensity from time to time, it had never ceased since the commencement of the attack. He described the pain as of a dull aching or gnawing character, slightly aggravated by motion. It did not increase in severity at night, and it had not been accompanied by pain in any other part of the body. He had never suffered from gout or rheumatism, and his general health was good; his aspect was healthy; tongue coated; bowels reported open, though usually costive; urine clear and acid; pulse 76, soft. Here, then, was a case in which all the causes of sciatic pain which we have hitherto considered appeared to be absent. There were no symptoms of local mischief in the spinal cord, or in the sciatic nerves, or of hip disease, or of renal irritation; no evidence of the existence of gout or rheumatism, or venereal taint; no mask of general nervous irritability, requiring sedatives for its subjugation. The patient was not a weakly or a nervous man, and his pulse was steady and quiet. To what, then, was the pain attributable? What indications were there for treatment? One, and one only, could be discovered. His tongue was coated, and his bowels were usually costive. True, they had acted on the morning of his admission, but when acrid or hardened fæces accumulate in the lower bowels, they do not necessarily obstruct the passage so far as to prevent even a daily action of the bowels. Nay, rather they are apt to excite local irritation, and a frequent desire to go to stool, which often leads the patient to imagine that he is suffering from diarrhœa. You have often noted cases in the wards of this hospital in which a spurious diarrhœa, excited and kept up by the cause under discussion, has resisted chalk mixture and various astringents, and has yielded immediately to a dose of castor oil, which has brought away a quantity of hardened fæces, or acrid unhealthy secretions. Therefore it was that in the case of J. S., I did not allow the alleged action of the bowels to deter me from following out the plan of treatment I had resolved upon after a careful con-

sideration of the symptoms of the case. If the pain were not excited sympathetically with the presence of acrid irritating matter in the intestines, to what could it be attributable? The closest inquiry had failed to elicit the slightest evidence of the existence of the other causes of sciatica, and if the cause under discussion had not excited the pain, there was no indication for treatment. Accordingly I determined to make trial of remedies which will usually get rid of fecal accumulations, and thus effect the object I had in view. Whilst allowing the patient a full and generous diet, with a pint of porter daily, I prescribed a powder, to be taken three times a day, consisting of two scruples of guaiacum and two of sulphur. This treatment was commenced on the 5th of May, and was continued until the 11th. At that date the pain was greatly relieved, and the bowels were acting so freely that the powder was repeated only night and morning. From this time he took it usually twice, but sometimes once a day, according to the action of the bowels, until the 19th, when, as he no longer suffered from pain, he left the hospital, and returned to work.

The instances I have hitherto brought before you have been examples of sciatica in which, the cause of the disease having been correctly diagnosed, the treatment was adapted to the exigencies of the case, and relief was speedily obtained. But although I have wished to bring prominently before you the possibility—nay, the probability—of affording speedy relief, if an appropriate method of treatment is employed, and the equal probability that failure will attend your efforts if you do not correctly ascertain the cause of the sciatic pain, and, therefore, cannot determine the class of remedies which are needed, I would caution you against putting a too favourable interpretation on my remarks, and imagining that sciatica ought in all cases to be got rid of within a few days of the commencement of treatment. Some cases there are, as you have already seen, which admit of relief in a very short time, but there are others, and unfortunately a large proportion, in which the patient's health is undermined, and cannot be so speedily restored, even though the nature of the derangement be correctly diagnosed; and others, again, in which it is almost impossible at the outset of the attack to arrive at a correct conclusion respecting the causation of the pain, and in which even if a correct judgment were formed on this point, it would still be impossible to afford speedy relief. Let me instance the case of P. D., aged forty-eight, who was admitted into the Hope ward on the 11th of December. This man a "commissionaire" by occupation, had suffered nine months from pain down the course of the right sciatic nerve. It came on gradually, and he attributed it to the effect of exposure to wet and cold. The pain was constant, but was worse at night, and prevented his obtaining quiet rest. A variety of external applications had been made use of prior to his admission to the hospital, but the pain had steadily increased in severity. On admission his aspect was healthy; his skin natural; pulse 84, of fair strength; tongue rather coated; bowels reported regular; urine scanty, high-coloured, and turbid; appetite good. He had never suffered from gout or rheumatism, or renal irritation, but he was extremely nervous. Judging from his history, and from the condition of his tongue and urine, I was led to regard his symptoms as attributable to rheumatic irritation of the nerve, aggravated by his nervous temperament. Acting upon this view, I prescribed a subcutaneous injection of half a grain of morphia at night, and a powder, three times a day, containing guaiacum, sulphur, and carbonate of soda, a scruple of each. This treatment was pursued until the 17th, when, as no relief had been obtained, he was ordered five grains of iodide of potassium, half a drachm of bicarbonate of potash, and an ounce and a half of nitre draught, every six hours. On the 21st his pain remained undiminished, and he complained of feeling weaker; and as his tongue had cleaned, and his urine had become clear, a drachm of the sesquioxide of iron was administered three times daily, and the biniodide of mercury ointment was ordered to be rubbed in along the course of the nerve. So he went on until the 2d of January, when he complained of so much pain in the hip that I was again induced to make a careful examination of the joint. I then discovered considerable tumidity and general enlargement over

the joint, which was painful on pressure, and evidently much distended with fluid. He could move his leg carefully without pain, but could not bear the head of the femur to be pressed upwards against its socket. Under these circumstances I applied a blister to the hip, and had the blister surface dressed with mercurial ointment; at the same time I gave him a morphia draught at night, and ordered him to take three times a day a nitre draught, containing six grains of iodide of potassium, and two drachms of the solution of bichloride of mercury, forming a soluble biniodide of mercury. Notwithstanding this treatment the pain became more constant and severe, and on the 15th, as the mischief appeared to be purely local, and the occurrence of ulceration of the cartilages more than probable, he was transferred to the care of the surgeons.

Now I would have you remark in reference to this case—1st, that the nature of the disease was overlooked, not only by those who had charge of the man prior to his admission to the hospital, but also by myself on his admission into the hospital, and that it was not until after the lapse of three weeks, when the enlargement of the hip attracted my notice that I became aware of the serious mischief I had to combat. The result—the inevitable result of this non-appreciation of the nature and extent of the mischief—was want of success in affording relief, and a steady progression of the disease. Probably the man was correct in his assertion, that the malady was originally of rheumatic origin, for he was healthy in appearance, and had not experienced any local injury of a nature to set up disease in the hip-joint. It is quite conceivable, therefore, that if, when he was first attacked by the pain, its rheumatic nature had been recognised, and he had been subjected to treatment calculated to get rid of the rheumatic tendency, instead of being merely treated by embrocations, lotions, and other local applications, which could have no influence on the cause of the disease, and little effect in subduing its local consequences, he might have escaped the injury to the joint, which, doubtless, was commencing at the time of his admission into the hospital. In like manner, if the true extent and character of the local mischief had been discovered when he first presented himself to my notice, and those measures had been at that time adopted to which I was ultimately obliged to have recourse, he might even then have been saved much unnecessary suffering. Rely upon it, gentlemen, the success of treatment depends upon its adaptation to the requirements of the case, and that in sciatica the non-success of any particular plan which may be adopted is in itself conclusive evidence that the remedies are not in keeping with the nature of the case. If the pain is referable to any removable cause, and the remedies are calculated to subdue or get rid of it, relief will be experienced in the course of a few days, and the patient will thenceforward proceed steadily to recovery; and if you fail in any instance to afford relief in ten days or a fortnight, you will always do well to mistrust your diagnosis, and make a fresh examination of your patient. In the case of P. D., I deferred doing so until after the lapse of three weeks, under the belief that my diagnosis was correct, and that a change of remedies might prove beneficial. The result shows how wrong I was in transgressing the rule which I have laid down for your guidance; and if you require any further incentive to induce you to follow my precept, rather than the example which I set you in this case, I may assure you that I have scarcely ever been called to see a case in which this rule had been departed from without feeling how much better the patient would have fared had his medical attendant been less confident in his diagnosis, and more disposed to pay heed to the teachings of nature as evidenced by the result of treatment.—*Lancet*, April 23, 1864, p. 459.

122.—ACID AND SUGAR IN SPIRITUOUS LIQUORS.

From Editor's Appendix to "The Chemistry of Wine," by G. B. MULDER. Edited by Dr. H. Bence Jones, F. R. S.

Acid.—"Proceeding from the least acid wine to the most acid, we have Sherry, Port, Champagne, Claret, Madeira, Burgundy, Rhine Wine, Moselle. The least acid fluids examined, were Geneva and Whisky; then Rum, Brandy, Ale, Porter, Stout; the wines were all more acid than the malt-liquors. The nature of the acid was not absolutely determined, but a volatile acid distils over from wine which is not acetic; and the action of polarised light shows that tartaric acid is seldom present. Hence the fixed acid is most probably racemic, and, perhaps, malic acid."

Sugar.—"I found no Sherry, Port, Madeira, or Champagne that did not contain more or less uncrystallisable Sugar (two samples of Sherry excepted, which were free from Sugar). I met with no Claret, Burgundy, Rhine, or Moselle wine (excepting only one sample of Sauterne), which was not free from every kind of sugar. Usually, spirits contain no Sugar; but one specimen of genuine French Brandy had some cane-sugar added to it. All kinds of Ale, Porter, and Stout, contain much glucose (grape-sugar). Hard Cider, I found also to be perfectly free from Sugar. Sweet Cider contains uncrystallisable Sugar."

"The fluids examined may be arranged in the following order, commencing with those which contain no sugar, and ending with the most saccharine. Geneva, Rum, Whisky, Claret, Burgundy, Rhine, Moselle. These contain no sugar.—Brandy, Sherry, Madeira, Champagne, Port, Cider, Porter, Stout, Malmsey, Ale, Tokay, Samos, Paxarette, Cyprus."—*Dr. Dobell's Manual of Diet and Regimen*, p. 31.

123.—ON THE RADICAL CURE OF INGUINAL RUPTURE.

By JOHN WOOD, Esq., Assistant Surgeon to King's College Hospital.

Operation by Pins.—This operation I use in cases of congenital hernia, and those of small size in lads and young men. In such cases, when the hernial canal is narrow, its sides yielding, and easily and completely approximated, there is no need of any intervening substance to fill up the hernial gap. The tissues also are thin and comparatively unaltered, and permit of an accurate examination, by the finger, through them when invaginated into the canal.

The apparatus used in this operation is very simple, and no incision through the skin is required.



Fig. 1.

The pins I employ are of various sizes—from three to five inches long, hardened at the point, but made in the shaft so that they will bend a little rather than break off short.

They are spear-pointed, curved boldly near the point like a suture needle, flattened on the concavity, with slightly cutting edges, and with a rounded shaft. At three or four inches from the point the shaft is bent into a right angle and twisted into a loop large enough to receive the point of a fellow needle. The projecting end is about an inch long, terminating in another loop for the purpose of being held by the dressings. (See Fig. 1.) When applied, the pin should be held by the middle of the shaft between the thumb

and long finger, the end of the fore-finger being placed upon the bent extremity. They are applied in opposite directions through the structures intended to become adherent, and are pinned through and through like an ordinary toilet pin. Each point is then passed through the angle loop of the fellow pin, and the ends then rotated in opposite directions, so as to twist up the confined tissues, and fixed by straps of plaster and pads.

The patient being laid on his back with the knees and shoulders raised, the scrotum is first invaginated into the canal, and the relative positions of the cord, the conjoined tendon, and Poupart's ligament carefully noted. In small cases this can be most conveniently done with the little finger. The finger should be carried up as far as possible, so as to fill in front of it the lower border of the internal oblique muscle, and to the inner side of it the conjoined tendon. The skin of the groin being then drawn directly inwards by an assistant, the needle is carried with its concavity outwards and downwards through the tissues directly upon the inside of the nail of the invaginating finger (see Fig. 2). The point is then turned downwards towards the pubis, and pushed steadily after the invaginating finger as it is slowly withdrawn, protecting the needle on the outer side. As the needle passes over



Fig. 2.

the pubis it is made to take up the fibres of the internal pillar attached to that bone, grazing the bone as it does so. The needle and finger must be kept fairly together, the two last fingers of the hand resting firmly on the groin over the deep ring. This gives steadiness to the hand, and, at the same time by its pressure, keeps the bowel out of the canal. The point of the



Fig. 3.

pin is then to be cut off with a pair of pliers. The second pin is then taken, and its point, with the concavity directed forwards, passed into the aperture through which the first emerges in the scrotum. The invaginating finger is then placed below it, and passed up into the canal, carrying the pin before it

till it touches the middle of the back surface of Poupart's ligament. Through this the pin is then pushed upwards and outwards till it can be seen to raise the skin (see Fig. 3). This is then drawn upwards by the assistant until the point of the pin can be pushed through at the same place at which the first pin entered. The pins are then locked, after which the point of the second pin is to be cut off conveniently close, and one of the bent ends of the pins twisted over the opposite side and held down by a pad of lint and a strap of adhesive plaster. A strip of oiled lint is then twisted round the pins where they lock, so as to protect the skin from their pressure somewhat (Fig 4). The whole is then retained by a pad and spica bandage.

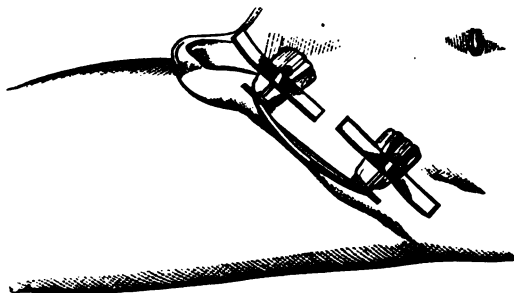


Fig. 4.

In this operation the conjoined tendon and inner pillar are transfixed by the first pin, which thus traverse the inner and hinder part of the hernial canal and sac, while the outer pillar is fixed at Poupart's ligament by the lower pin. The whole of these parts, with the hernial sac, are twisted together by the revolution of one pin round the axis of the other, so that the hinder wall is drawn forcibly forwards and outwards, and the front walls backwards and inwards till the canal is firmly closed. The cord lies behind the pins, closely embraced by the twisted tissues. Adhesion takes place between the parts in their new position, following up closely (if the case does well) the slow ulceration in the course of the pins. These are kept in a week or ten days, according to the amount of fibrinous effusion which takes place in the canal. About that time a thick firm mass of deposit occupies the course of the pins, excluding the bowels, filling up the sac, and uniting all the twisted tissues into a solid mass. When the pins are withdrawn, simple water dressing or a poultice may be applied. As the wound heals, a stout pad should be applied over the dressings, and held in its place by a bandage firmly applied. When the openings have sufficiently healed, a horseshoe-pad truss should be applied, with a bit of cotton wool or lint between it and the skin to protect the tender skin. Until this time the patient should be kept in the recumbent position. After the truss had been applied, he may be suffered to get up.

If, in the course of the treatment, the testicle becomes much swollen, all bandages and pressure should be removed, and cold water or evaporating lotion applied. Some degree of swelling of the testicle is beneficial, rather than otherwise, as showing a sufficiently close embrace of the cord, and, consequently, obliteration of the canal. The pins usually are withdrawn with great ease and very little pain. The patients ordinarily suffer so little, that food is taken in the usual way a day or two after the operation. I seldom find it necessary to employ a stricter regimen than milk diet for the first few days. As the wound heals, an allowance of wine or beer may be permitted, and the general health of the patient supported as much as possible, to ensure a more vigorous reparative formation in the parts.

In some cases I have applied the pins transversely to the canal, especially where, as in cases of a large size and direct kind, the rupture shows a tendency to emerge behind the cord, lifting it forwards and pushing it outwards. In some of these very large cases it has been necessary to repeat

the operation in order to meet this tendency. Wire has also been applied transversely under these circumstances. It is important in such cases to make the deeper pins or wire touch or graze the upper border of the pubis, over which the rupture emerges. By establishing a bridge of adhesion there, this tendency is better counteracted.

In the case of a child, aged three years, now in the hospital, a very large rupture, reaching half-way down the thigh, and totally unmanageable by any kind of truss, has been very successfully treated. No impulse whatever is now felt on crying, and the large sac can be felt doubled up in the scrotum, and forming a hard tumour, connected above with the pillars of the ring and canal. The child's health and appearance have positively improved during the time that he has been under treatment. I have found it very advantageous in this and other large cases to keep the child's head and shoulders laid a little lower than his body and legs. This diminishes much the force with which the rupture presses from above upon the newly-formed adhesions. In these large cases the ring truss pad, described in a former paper, will be found to give a more direct and efficient support to the adhesions. At the same time it does not press upon the structures which fill up the hernial gap in the abdominal walls. The sides of the inguinal canal and the pillars of the superficial ring, already closed up by the operation, are kept in position by the pressure of the ring or horseshoe truss-pad. The first complete closure and obliteration is effected by the operation, and the truss, by supporting properly the newly-formed tissues, during some months after the operation completes the cure.

I have kept cases treated upon this plan in view for two or three years, the rupture remaining perfectly cured up to the present time, without any truss being worn after the first six or eight months. The growth and development of young subjects, assist powerfully in rendering the resistance to reprotrusion more efficient as time elapses, during which the bowel is effectively excluded from the canal. The very large cases of the two brothers Dunn (47 and 48 in my work on Rupture), operated on in June, 1862, remain, according to a letter from the father received a short time ago, perfectly cured up to the present time.

I may here mention that, as I am anxious to obtain, as far as possible, correct statistics of my cases of radical cure, I should be glad to receive information that may have been directly verified by any of my readers as to the failure of any of my cases, specifying the names and address of patient, date of operation, and whether one of my trusses had been worn.

It is the interest both of the profession and of the public to have the utmost light thrown upon the results of an operation for the cure of a deformity which has baffled the efforts of surgery for the last thousand years or upwards. I should be also very glad to know the results that have been obtained by any of my professional brethren, both in this country and abroad, who have given these methods of operating a fair trial. I would emphasise a *fair* trial, because many operations have been done based upon the principles, wholly or partly, which I originally laid down as necessary for the cure of rupture, but altered my modifications according to the fancy of the operator, many of which (from the accounts I have received) have influenced the results of the operation very materially.—*Medical Times and Gazette*, May 7, 1864, p. 503.

124.—ON URÆMIA.

By Dr. GEORGE HARLEY, Assistant Physician to University College Hospital.

Uræmic poisoning is a subject of such grave importance to the Medical man that I must say a few words regarding it. There can be no doubt that urea is a powerful irritant poison. When injected into the veins of animals it rapidly induces convulsions. It is not necessary, as some have imagined, that the urea should be decomposed in the blood in order to produce its toxic effects. On the contrary, I believe that urea is a far more dangerous poison

than the substance into which it is decomposed, namely, the carbonate of ammonia. Both are, however, poisonous, and they frequently manifest their action together, for although we may, perhaps, have uræmic without ammoniacal poisoning, we cannot have the latter, as the result of disease, without its being in some measure associated with the former.

True uræmia depends on the arrested elimination of the poisonous material by the kidneys; true ammonæmia on the reabsorption, into the circulation of the decomposed secreted product.

Uræmia may occur in the course of any disease in which suppression of the renal secretion takes place. It is therefore superfluous to specify the diseases in which it may occur by name.

Carbonate of ammonia poisoning occurs in its least complicated form in those cases where the urea, although secreted, is retained in the urinary passages until it is decomposed, and the products of its decomposition are reabsorbed into the blood. Just as was formerly said the normal ingredients are reabsorbed from the bladder, when from any cause the urine is retained for some length of time in that viscus. The conditions under which it most commonly occurs are therefore:—

1st. Sacculated kidneys.

2d. Dilatation of the ureter and pelvis of the kidneys.

3d. Renal Abscess.

4th. Paralysis of bladder.

5th. Enlarged prostate with retention.

6th. Stricture with retention; or, indeed, retention from any cause whatever,—all that is required to induce ammonæmia being the retention of the urine in the body sufficiently long to allow of the decomposition of its urea. It is quite surprising, indeed, in how very short a time retained urine may become ammoniacal.

In Mr. Marshall's case of exfoliation of the bladder, which has during the last year given rise to so much discussion, the urine contained such an abundance of carbonate of ammonia that it effervesced exactly like a seidlitz powder when I added to it a few drops of acid.

The symptoms which distinguish ammonæmia from simple uræmic poisoning have been recently carefully pointed out by Jacksch (1860).

In ammonæmia the urine is ammoniacal when passed. The breath and perspiration are ammoniacal. The mucous membrane of the mouth is dry and shining. The complexion is sallow, and there is increasing emaciation. No dropsical symptoms are present. Convulsions are rare, but intermittent ague is frequent. Moreover, although in the acute form of the disease both vomiting and diarrhoea may occur, in chronic cases, which are much more common, these symptoms are always absent. Death is in general preceded by coma, varying from a few hours to several days in duration.

It is thus seen that the symptoms, as well as the pathology of ammonæmia, present striking features of difference to those of pure uræmia. The most characteristic of the latter being the vomiting, the diarrhoea, the convulsions, and coma. The treatment of the two cases is in several particulars equally different.

In the first place, ammonæmia arising, as it generally does, from directly remediable causes, is much more frequently under our control than uræmia. For example, when the ammonæmia is due to the simple retention of urine in the bladder repeated catheterisation is usually followed by a speedy cure. In no case is uræmia within the reach of instrumental interference. Its most remediable form is when it arises from some temporary incapacity of the kidneys to perform their office; as in suppression of the urine after scarlet fever, or in idiopathic nephritis. Here we can do good by relieving the congestion of the kidneys by cupping or leeching the loins; and when the patient is too weak for such active measures, by the application of dry cupping-glasses, poultices, and the free use of the air-bath. In most other particulars, the two diseases are to be treated alike; and when neither offers us a chance of permanent cure we can in general alleviate the sufferings, and prolong the life of the patient by reducing the formation, as well as by hastening the

elimination of the urea. This may be accomplished by a proper selection of food and medicine.

The remedies which enable us to control the formation, and hasten the elimination, of urea are the following :—Whenever there is an excessive tissue waste, as indicated by an augmented excretion of urea, without any very apparent cause, the citrate of quinine and iron appears to be a most useful remedy. Sigmund has observed that digitalis diminishes the elimination of urea ; and Kletzensky, that benzoic acid has a similar effect, but in a much greater degree. The last named observer states that the daily excretion of urea may actually be reduced to 2·5 grm. (38·75 grains), by benzoic acid, in the short space of twenty-four hours. The acetate and phosphate of soda, as well as colchicum, act in a similar manner (Parkes). On the other hand, we have several remedies which increase it. Thus, Sigmund found that cubebæ and cantharides have this effect ; and Parkes has noted that atropine augments its elimination. If we wish to diminish the urea by means of the diet, all that is necessary is to administer arrowroot, sago, tapioca, and other such starchy foods, well sweetened with sugar ; and when a more nourishing food than this is demanded, cream, cod-liver oil, or any other fatty matters that may be considered suitable to the peculiar case, will have an equally good effect in reducing the amount of urea. On the other hand, when it is deemed advisable to increase it, animal soups, eggs, milk, jellies, and others nitrogenised matters, together with a fair portion of common salt, will answer the purpose. To these may be added coffee, but without sugar.

In concluding my remarks on urea, I have to remind you how useful a knowledge of its daily excretion is in prognosis. Thus, it will have been gleaned from what has already been said regarding the amount of urea in the urine during the course of disease, that if, in cases of fever, such as typhoid and typhus, or of the exanthemata, such as small pox and measles, or of inflammatory affections, such as pneumonia and meningitis, a decrease in the daily elimination of urea is observed, it may be regarded as a most favourable sign for the prognosis ; for no sooner does a change for the better take place in these affections, than an immediate diminution in the amount of the urea is observable. During convalescence, the quantity is frequently below the normal standard. Whereas, in cases tending to a fatal termination, even in spite of the true febrile symptoms having passed away, the daily excretion of urea still remains high. Hence this sign may be a valuable and truthful guide when all others fail. If, on the other hand, in those diseases in which the excretion of urea is known to be abnormally small, such, for instance, as paralysis, cholera, or the different forms of albuminuria, an increase in its amount during the course of the case is noticed, it is an equally favourable sign for the prognosis ; while on the contrary, any further reduction in the amount of the eliminated urea cannot be otherwise regarded than a most untoward event, as, even when the other symptoms have improved, it is an almost infallible index of approaching danger.—*Medical Times and Gazette*, April 30, 1864, p. 474.

A SYNOPSIS,

CONTAINING A SHORT ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THE PRECEDING PAGES : SHOWING, AT A GLANCE, THE MOST IMPORTANT INDICATIONS OF TREATMENT PUBLISHED BY DIFFERENT WRITERS WITHIN THE LAST HALF-YEAR. (ARRANGED ALPHABETICALLY.)

AFFECTIONS OF THE SYSTEM GENERALLY.

ENTERIC FEVER.—Foul air merely favors its invasion ; but its true cause is something much more specific, some ferment which is peculiar to the disease, and has hitherto eluded our search. We shall do well to encourage better drains, more and better water-closets, and better ventilation of dwellings ; still we must not count upon thus extirpating enteric fever. (Dr. R. Christison, p. 20.)

PAIN.—Pain is a disease *per se*. It occurs alone, unaccompanied by the other three symptoms of inflammation, redness, heat, and swelling. It results in most cases from an abnormal state of the sensory nerve fibres, and this arises, and is inseparable from, a state of constitutional debility. Pain in one fixed spot in the spine, increased on pressure, does not always indicate spinal disease ; many such pains yield at once to the local employment of opium in extract, and to the internal administration of bark, valerian, and ammonia. The pain is far more severe than in cases of real spinal disease. (Mr. F. C. Skey, p. 234.)

RHEUMATIC PAINS IN THE TENDONS OF THE HAMSTRING MUSCLES.—The constant local application of sulphur is often of much use in these troublesome cases. It may be dusted inside the stockings, or inside a flannel bandage. The skin becomes hotter, more excited, and disposed to sweating. (Dr. Renard, p. 28.)

SCARLET FEVER.—*Chlorine*—The throat affection of scarlet fever must be considered to be an effort at elimination of the poison from the blood. Hence, a great point in the treatment is to give some remedy frequently which, in passing over the throat, shall neutralize the poison which nature is casting off, and so prevent it being swallowed over and over again, and the system being more and more loaded. A strong solution of chlorine should be given night and day, every hour, and it is well to trust simply and solely to this. Sometimes, however, a little antimony may be added, to lower the pulse, or sometimes a little quina. (Mr. E. J. Blyth, p. 21.)

TRICHINA SPIRALIS.—The *Trichina Spiralis*, occasionally found in the muscles of men enclosed in a minute calcareous capsule, is now as to its history and habits pretty well understood. It is contained in some specimens of pork, and is quite killed if the meat is very thoroughly cooked ; if this is not the case, immediately on entering the stomach the worms commence their development, male and female. The innumerable young worms perforate the intestines, enter the muscles, and wandering in them produce very violent symptoms, similar to those of typhus fever, and causing in many cases the death of the individual. (Dr. W. Muller, p. 34.)

ZYMOTIC DISEASES.—*Sulphites and Hyposulphites.*—Sulphurous acid possesses the power of arresting every kind of fermentation and decomposition, and the sulphites and hyposulphites of soda, potassa, and magnesia, have an action quite as decided as that of the acid itself in preventing fermentation. These salts hence are of the greatest value in the treatment of zymotic dis-

eases, especially severe cases of fever. Many very interesting experiments have been performed to investigate and establish these points. A scruple to half a drachm of the sulphite or hyposulphite of soda may be given three or four times a day. One of the cases related in which this treatment did good, was one of troublesome and frequently recurring boils. (Professor Polli, Dr. de Ricci, p. 22.)

AFFECTIONS OF THE NERVOUS SYSTEM.

EMPROSTHOTONOS.—*Ice to the Spine.*—Certain cases of emprosthotonos occur, which are not real cases of tetanus, nor yet can they be called hysteria. The spasm is very severe, and so long continued that, unless speedily relieved, the patient appears as if she would die, either from exhaustion, or spasm of the respiratory muscles. A most successful means of treating these cases is the application, along the whole length of the spine, of bags containing ice. In a case in which this was tried the symptoms were at once mitigated, and in half an hour ceased entirely. (Dr. J. Edmunds, p. 56.)

EPILEPSY.—*Bromide of Potassium.*—We have in bromide of potassium a remedy of considerable efficacy in epileptiform disease when connected with uterine derangement. As much even as thirty or forty grains may be given three times a day, as it is not a drug which produces any injurious effects. (Dr. R. M'Donnel, p. 49.)

INSANITY, DELIRIUM TREMENS.—In cases of maniacal excitement there is no sedative so useful as digitalis; opium is comparatively valueless. In cases of general paresis, with maniacal excitement, there is a continual noisiness and reckless violence, on which no moral or physical obstacles make the slightest impression; and we have in digitalis, administered day by day, a remedy capable of controlling excitement, and, indeed, acting almost as a specific. It should be commenced in half drachm doses of the tincture. (Dr. C. L. Robertson, p. 46.)

LOCAL PARALYSIS.—When the main nerve trunks of a limb have been injured, paralysis of both sensation and motion results, with coldness of the limb, and, in time, wasting of its muscles. The treatment adapted to such cases is constant warmth of the limb; regular friction and shampooing; localized galvanism, that every several paralysed muscle may be made to contract; constant voluntary efforts to regain lost movement; guards against distortion from unbalanced actions of muscles, especially contracted fingers or elbows. When the arm is paralysed, there are two symptoms not previously noticed; 1. The fingers corresponding to the injured nerves become glossy in appearance. This symptom is not invariable, and is associated with distressing pain and unmanageable disability. 3. The pupil on the injured side is usually rather contracted, but without any impairment of vision. (Mr. J. Pagot, p. 58.)

NEURALGIA.—In tic douloureux, and nearly all neuralgic affections, give from five to ten drops of the concentrated tincture of gelseminum in a little water. This dose may be repeated every four or six hours. This drug has none of the bad effects of opium, and sometimes relieves pain remarkably well. (Dr. Bruithwaite, p. 60.)

Superficial Neuralgia.—Compresses of lint impregnated with a solution of sulphate of atropia applied to the seat of the pain, and covered with a piece of oiled silk, are of great use in relieving this pain. Atropia is more cleanly and efficacious than belladonna. (Mr. Trousseau, p. 272.)

Aconitine is a most valuable external remedy for the purpose of alleviating neuralgic pains. In the form of the unguentum aconitiæ, in which eight grains of the alkaloid are dissolved in a little spirit and then thoroughly mixed with an ounce of prepared lard, it is a clean and elegant preparation. (Dr. A. B. Garrod, p. 60.)

SCIATICA.—Sciatica is often connected with sympathetic irritation excited by long continued loading of the bowels, or by the presence of irritating se-

cretions in the primæ viæ. Such patients may never have suffered from gout or rheumatism in their lives. The pain is, moreover, usually felt down the course of both sciatic nerves, instead of being confined to one side, the tongue is furred, and the bowels are costive. Ordinary aperients do not remove old accumulations from the bowels. The best purgative for this purpose is a powder composed of equal parts of guaiacum and sulphur, of which four scruples must be taken three times a day. (Dr. H. W. Fuller, p. 269.)

TETANUS.—*Local Application of Tobacco.*—In a case of tetanus from burn, which occurred to Mr. Tyrrell, of Dublin, immediately on the supervision of the symptoms the burn was covered with lint saturated in an infusion of tobacco. Wine and beef-tea were freely administered. The treatment seemed to be of much use, and the case ended successfully. (Mr. Tyrrell, p. 54.)

AFFECTIONS OF THE CIRCULATORY SYSTEM.

ACUPRESSURE versus DELIGATION OF ARTERIES.—There can be no doubt that the use of the ligature tends to prevent primary union in cases of amputation, and Dr. Simpson, the inventor of the method of closing vessels known as acupressure, and those gentlemen who have given this plan a fair trial, have become more and more convinced of its utility. The needle need not be retained even over a very large artery, as the femoral, for a very long period; in one case four days, in another two only elapsed before its removal. To procure union by the first intention other precautions are necessary, otherwise our object in employing acupressure is not gained. The sides or flaps of the wound must never require pulling or tension to keep them in opposition, and wounds or flaps must be more systematically shaped than they are even at present. The dead particles of bone-dust must be carefully removed from the surfaces of flaps by a stream of water, or they otherwise act as dead foreign bodies. Coagula of blood invariably act as dead foreign bodies; to prevent their formation the wound must not be closed until all bleeding has ceased. The flaps must be carefully closed from below upwards, and never the edges first, otherwise atmosphere air is included. The mere shallow cutaneous edges of flaps are usually brought together by superficial stitches; instead of this metallic sutures should be planted so deeply as to embrace to a considerable extent the sides of the wound. It is better to avoid much strapping after amputations. (Dr. J. Y. Simpson, p. 84.)

Methods of applying Acupressure.—There are three methods of arresting hemorrhage from a vessel by means of acupressure:—

1. Pass a long needle twice through the flaps or sides of a wound so as to cross over and compress the bleeding artery. The only portion of the needle which is left exposed internally, on the fresh surface of the wound, is the small middle portion of it. The head and point are exposed externally.

2. Thread a common short sewing needle with iron wire, and dip it down into the soft textures a little to one side of the vessel, then raise it and bridge it over the artery, then dip it down again and thrust it into the soft tissues on the other side of the vessel. Care must be taken to press the end of the needle down upon the mouth or tube of the bleeding artery with force sufficient to arrest the hemorrhage.

3. Let the point of the needle be entered a few lines to one side of the vessel (on the surface of the flap), then under the vessel, and let it emerge a few lines beyond the vessel. Now throw a noose of wire over the point of the needle, carry it across the mouth or site of the vessel, and, passing it around the eye of the needle, draw it sufficiently tight to close the vessel, when it may be fixed by a twist or half twist around the stem of the needle. The needle may be withdrawn at the proper time by simply pulling at the wire with which it is threaded, and the noose, being liberated, can be withdrawn also. (Dr. J. Y. Simpson, p. 87.)

Does Secondary Hemorrhage frequently result from the employment of Acupressure?—In eleven cases in which the ligature was used at the Carlisle Hospital, there were four cases of secondary hemorrhage; in eleven in which acupressure was employed there was only one such case. It is necessary when we employ acupressure to remember this, that so long as the pulsation can be felt going on along the artery, down to the point of compression, it is unsafe to remove the needle, as permanent occlusion has not yet taken place. (Dr. J. Y. Simpson, p. 92.)

ANEURISM.—*Application of Indices to Pressure Instruments.*—The bad consequences resulting from, and the ill success so often attending the application of pressure for the cure of aneurismal tumours, arises from its defective application. Too frequently, excessive pressure is employed. This, it is probable, may be obviated by the application of indices to the instruments. By this means the minimum force by which the circulation can be arrested is ascertainable, and when the pad is subsequently reapplied by assistants there are less likely to be errors in the direction of pressure and in its amount. The amount of pressure should be registered by means of a needle on a scale, communicating with a strong spring. (Mr. E. Hart, p. 99.)

Incurable Aneurism.—*New Method of Treating.*—In a case of sacculated aneurism of the ascending aorta a small-pointed canula was inserted into the tumour, and a large quantity of fine iron wire was passed into the interior of the sac. The operation lasted an hour, and the quantity introduced was twenty-six yards. No pain or inconvenience was caused. The pulse was at once reduced in frequency, and pulsation almost completely ceased in the tumour, which diminished in size. In a few days, however, rigors set in and the patient died with symptoms of pyæmia. The idea is one of value, and treatment of this nature with the view of producing consolidation of the tumour may be occasionally adopted in other aneurisms than those of the aorta, with less risk and more success. (Mr. C. H. Moore, Dr. Murchison, p. 100.)

SUBCUTANEOUS NÆVI.—*Removal of by Ligature without loss of Skin.*—Nævi which are entirely subcutaneous may be removed without any loss of skin, by passing the ligatures round the tumour, between it and the skin, so that the tumour only is included. The first step in the operation is to transfix the base of the tumour in its longest diameter with a needle carrying a double thread of strong silk ligature; the thread must then be cut close to the needle, and the two threads carried, by means of a slightly bent eyed silver probe, round the halves of the tumour subcutaneously, and tied. When the tumour is large the plan illustrated by the woodcuts at pp. 95-6 must be followed. (Mr. J. Jardine Murray, p. 94.)

VARICOSE VEINS.—The plan of attempting to obliterate varicose veins by means of a needle or pin beneath them, and a ligature, is not only frequently unsuccessful, but is actually in many cases productive of harm. A far better plan is to apply to the most projecting parts of the veins a paste composed of two-fifths pure potash and three-fifths lime, mixed up with a little alcohol. It should be applied through a series of about four layers of adhesive plaster, having a hole through them about the size of a threepenny piece, or smaller. The entire vein becomes obliterated, and is undetectable by the finger on pressure. As many as from ten to twenty-five small eschars may be applied between the ankle and the knee. (Mr. F. C. Skey, p. 98.)

VENOUS HEMORRHAGE AFTER AMPUTATION.—It occasionally happens that after amputation of the thigh there is very troublesome hemorrhage from the femoral vein. In such a case, grasp the mouth of the vein by a very small pair of Dieffenbach's artery forceps, and leave it in the interior of the wound, but having a string attached. Its pressure effectually controls the flow of blood; its bulk forms no obstacle to bringing the parts into close approximation; and it can be removed with the greatest ease, almost indeed with the same facility that we draw away a ligature. It is never safe to tie a vein. (Mr. G. H. Porter, p. 97.)

AFFECTIONS OF THE RESPIRATORY SYSTEM.

ASTHMA.—*Iodide of Potassium.*—There are many cases of asthma in which iodide of potassium acts quite as a specific. When there are other indications for its use, as thick urine, gouty or rheumatic tendency, it is well worth employing. It does not usually relieve until it has been taken some days. (Dr. H. Salter, p. 62.)

CHRONIC BRONCHITIS.—*Larch Bark.*—In cases of chronic bronchitis in which expectorants have ceased to be useful, and the profuse expectoration is rather to be checked than encouraged, a remedy the use of which is attended with marked success is the tincture of larch bark. It should be given in doses of twenty to thirty minims, in a mixture consisting of tincture of gentian, nitro-muriatic acid, and water, with or without ipecacuanha wine or tincture of camphor. It is a remedy which never disagrees with the stomach. The employment of this drug is of course contraindicated in cases of acute bronchitis. (Dr. H. Greenhow, p. 65.)

HOOPING COUGH.—*Bromide of Ammonium.*—This remedy has been extensively tried lately in whooping cough, and it has been found to have a decided effect in arresting the whoop. The anæsthetic effect of the remedy on the nerves of the throat claimed for it by Dr. Gibb, would lead us to expect benefit from it in these troublesome cases. A grain may be given for each year of age three times a day. All cases of whooping cough are not equally benefited by the remedy; some pertinaciously resist its action, while others readily yield to it. (Dr. G. Harley, p. 66.)

LARYNGISMUS STRIDULUS.—In cases of this troublesome affection connected with dentition a bag of ice applied to the cervico-dorsal portion of the spine will frequently arrest the attacks. (Dr. Ramskill, p. 57.)

TRACHEOTOMY.—*Excision of a Portion of the Trachea.*—It is of great importance in tracheotomy that a portion of the tube should be excised. The removal of a thin elliptical piece about half an inch in length is sufficient. The canula can then be borne without the production of irritation and cough. (Mr. G. H. Porter, p. 107.)

AFFECTIONS OF THE DIGESTIVE SYSTEM.

DIPHTHERIA.—*Local Applications to the Throat.*—Hydrochloric acid, diluted with an equal quantity of water, is more effectual, perhaps, than nitrate of silver. Whichever is used, its application should be limited to the exudation, and the parts simply inflamed avoided as much as possible. Gargles are never of much service. (Dr. W. Gibson, p. 66.)

It is a plan often of considerable service to dust the throat with powdered alum, or tannin, or a mixture of both, which may be blown in through a quill. (Dr. W. Gibson, p. 67.)

Caustic applications are too frequently applied to the throat in diphtheria, and are often productive of the most disastrous consequences. Dr. Greenhow observes that much mischief follows the frequent tearing away of the exudation, by probings or similar contrivances, for the application of nitrate of silver. The application of nitrate of silver can but rarely extend to the entire diseased surface, and the subjacent tissues are so deeply involved in cases of really malignant diphtheria, that any application to the surface could apparently exercise no beneficial influence upon the disease. (Dr. J. Morton, Dr. Greenhow, p. 256.)

HERNIA.—*Cure by Operation.*—To make the parts strong, resisting, and permanently secure, the aponeurotic passage must be closed entirely up to the deep ring. This cannot be done by dilating the opening by a hard plug of wood, nor by invaginating a portion of the scrotum, nor by merely procuring adhesion of the pillars of the superficial ring. Mr. Wood now practises two operations, in both of which metallic sutures are used. When the openings are large, it is necessary to invaginate as much of the fundus of the

hernial sac and its coverings as to fill up the openings completely. The skin must not be invaginated, as its surfaces are incapable of adhering. Make an incision an inch long, with a small tenotomy knife, through the skin of the scrotum, about two inches below the pubic spine, and directed obliquely downwards and outwards. Then separate the skin at the sides of the incision from the deeper fascial tissues to the extent of an inch on each side. The detached fascia must then be invaginated as far as possible with the finger, and a strong curved needle, mounted on a handle, must be passed along the finger through the invaginated fascia, and then through the conjoined tendon and internal pillar of the superficial ring. When the point raises the skin of the groin, the latter must be drawn over by an assistant towards the linea alba, and the needle then pushed through the skin. One end of a well-oiled piece of silver wire, about two feet long, must then be hooked on to the eye of the needle and drawn back into the scrotum. Detach the needle, and let it be again inserted from below; and, transfixing the middle of Poupart's ligament, be passed through the same hole in the skin previously made (by drawing the skin outwards). Now hook the opposite end of the wire on to the needle and withdraw into the scrotum, leaving a loop of wire protruding at the upper puncture. Then pinch up the sac of the rupture between the finger and the thumb, separating it from the vas deferens and spermatic cord, and pass the disengaged needle across the sac, close in front of the spermatic cord. The inner end of the wire is then hooked on to the needle and drawn through across the sac after the needle. The ends of the wire are then twisted down into the scrotal puncture and cut off to about four inches in length. Traction is next made upon the upper loop, by which the lower twisted ends of the wire are drawn into the canal, invaginating the twisted sac up to the deep ring. Three or four firm twists of the wire loop are sufficient to retain the sac in this position, and to draw tight upon it the sides of the inguinal canal. The loop and ends of the wire are, lastly, connected together over a pad of rolled lint, placed at (a) Fig. 2, between the wire and skin, and held steady by a spica bandage and compress. During the operation the knees of the patient must be kept well together, and flexed upon the trunk so as to relax the structures in the groin. (Mr. J. Wood, p. 114.)

In cases of congenital hernia, and those of small size in lads and young men, an operation for the radical cure of the lesion may be easily performed, the invaginated parts being retained *in situ* by peculiarly shaped pins. These pins are easily applied, and the operation is one which will, by its simplicity, at once recommend itself to the profession. We refer our readers to the article for the details of procedure, as we find we cannot abbreviate it without loss of some of the most interesting points. (Mr. J. Wood, p. 272.)

Flat instead of Convex Truss Pads.—By the use of the convex truss pads ordinarily used, the hernial openings are continually widened by invagination of the skin and front coverings of the hernia, giving rise to a gradual increase of the rupture in size. The enlargement of the openings is much increased by the constant boring or lateral motion of the side spring during walking, in those trusses which have no joint between it and the pad.

To meet these requirements, Mr. Wood has devised a pad for *oblique* hernia, having a perfectly flat surface, rounded off at the edges, and arranged in the shape of an oblique horseshoe, with one end longer than the other. By this the two pillars of the external ring and the internal opening are supported, but the canal itself can never be dilated or enlarged, and the cord is not subjected to any pressure.

For *direct* hernia a flat ovoid ring pad is most suitable.

An india rubber water cushion may be fitted to the surface of these pads, if their direct pressure causes inconvenience. These pads keep their places quite as well as the common pads. (Mr. J. Wood, p. 111.)

New Hernia Truss.—Mr. Salt's truss affords, in addition to the usual inward pressure of ordinary trusses, an upward or lifting pressure, always required for the support of hernia. It may be obtained from him. (Mr. T. P. Salt, p. 116.)

RANULA.—This disease may always be rapidly cured by passing a silk thread through the middle of the cavity. The contents will be rapidly absorbed, and the adhesive process will obliterate the cavity. (Mr. F. C. Skey, p. 138.)

ROUND AND THREAD WORMS.—*Santonine.*—Santonine is, without doubt, the best known remedy for round and thread worms. The dose for adults is from two to six grains, and for children from half a grain to a grain. It may be combined with twice its weight of sugar of milk. Dr. Fleming gives this dose once a day, at bedtime, suspended in a table-spoonful of cream. Next morning a dose of castor oil must be taken. The patient should fast after mid-day, when the powder is about to be taken at night. This process may be repeated for two or three days, or until the worms are discharged. (Dr. Anderson, British Medical Journal, April 23, 1864, p. 444.)

TAPEWORM.—*Oil of Male-Fern.*—When oil of male-fern is not successful in expelling the worm, it is owing to its not having been properly administered. Let the patient take a two ounce black draught, and on the following day no other food than an unlimited supply of beef-tea; and, in the evening, let him take half an ounce of castor-oil. Early on the following morning let him take two fluid drachms of the oil of fern, suspended in two ounces of thin mucilage of acacia. Within two hours a dead worm will be expelled. (Dr. Rendle, British Medical Journal, April 9, 1864, p. 390.)

AFFECTIONS OF THE URINARY ORGANS.

ACIDITY OR ALKALINITY OF URINE.—*Method of Determining.*—When it is necessary to administer alkalies, we can only be guided in the amount given by the effect produced on the urine; and yet there is no means of estimating this, short of the production of positive alkalinity. Moreover, alkalies should not be pushed so as to produce positive alkalinity of urine. A method of easily ascertaining the amount of daily increase of acidity or alkalinity will be found at p. 70. (Mr. M. Donovan, p. 69.)

DIABETES.—An excellent summary of the proper diet in diabetes will be found at p. 76. We cannot well abbreviate it. (Dr. E. Smith.)

LITHOTOMY.—It is a matter of the highest importance in the operation of lithotomy to secure the stone in good position in the forceps before withdrawing it, and to give time and patience to the extraction. There must be no attempt to drag it out in a hurry. Median lithotomy should be preferred to lateral, except when the stone is one of the largest size. In performing the median operation, it is better to dissect downwards from the surface of the perineum to the staff, instead of making a direct puncture and cutting upwards and outwards, as practised by Mr. Allarton. During this proceeding, the palmar surface of the left index finger should be closely applied to the upper wall of the rectum. (Mr. H. Thompson, p. 124.)

LITHOTRITY.—The bladder of the patient should not be quite distended with urine before operating, nor must the patient even have retained his urine as long as he usually does, otherwise the bladder is aroused to action, and the operation rendered less easy. The same effect is produced by introducing a catheter and withdrawing the urine, and then again filling the bladder with tepid water by means of a syringe. (Mr. H. Thompson, p. 119.)

It is not only a superfluous interference, but an unnecessary prolongation of operative interference, to inject the bladder with tepid water before crushing the stone. The patient must simply be requested to retain his urine, if possible, a few hours prior to the introduction of the lithotrite. If injections are to be recommended, it is certainly after the operation. They then frequently ensure comfort and are attended with advantage. (Mr. G. Pollock, p. 121.)

UREA.—Urea is not the special product of any one particular tissue or organ, but is the united product of all nitrogenised effete matter. Its elimination is increased by the imbibition of water, by the use of common salt,

and of coffee. Certain foods greatly diminish the elimination of urea; of these sugar holds the foremost rank, starch has the same effect, and also, all fatty foods. It appears, in fact, that all nitrogenised foods augment, and all non-nitrogenized foods diminish the amount of urea eliminated by the kidneys. (Dr. G. Harley, p. 72.)

AFFECTIONS OF THE BONES AND JOINTS, ETC.

AMPUTATION BY SINGLE FLAP.—There are some advantages in amputating the thigh by a single flap not possessed by any other plan of operating, especially the facility it affords of amputating either through the knee or through any part of the lower end of the femur, the flap being formed by the anterior coverings of the knee-joint, thus the risks of exfoliation, pyæmia, &c., attendant on sawing through the cylinder of bone are avoided, and the cicatrix is better drawn out of the reach of pressure than by any other plan. (Mr. H. D. Carden, *British Medical Journal*, April 16, 1864, p. 418.)

DISLOCATION OF THE SHOULDER.—*Painless Reduction of.*—Lay the patient flat on his back upon a sofa, but with half his body over the side of the mattress, the injured limb being, however, carefully supported. Now very gradually raise the arm from the body, stopping whenever pain is caused, and manipulating the muscles until it is raised to a line with the shoulder. The limb must now be gently transferred to the care of an assistant, and the operator must grasp the shoulder with the four fingers of each hand, joining them above the acromion, so as to render the scapula immovable. He must next carry the two thumbs to the head of the humerus, and by exerting some pressure on it, aided if necessary by slight extension made by the assistant who supports the limb, the bone will easily slip into its place. No pain need be caused at all. (M. A. Salmon, p. 80.)

FRACTURES.—*Use of Iron Pegs to secure Approximation of the broken ends of Bones.*—In cases of ununited fracture absolute immobility of the opposing ends of the bones is necessary, and sometimes unattainable by any plan at present pursued. It is found that iron pegs do not produce inflammation and suppuration when inserted into the bone, and the complete apposition of the fractured portion is at once and most effectually secured. If they cannot be conveniently withdrawn they may be left, as they will cause no inconvenience. It is, moreover, unnecessary to make an external wound to accomplish the introduction of the nails, as it may be done subcutaneously. The ivory pegs used by Dieffenbach cause irritation, metal does not, and is therefore applicable to cases of recent, as well as to old and ununited cases of fracture. (Mr. E. R. Bickersteth, p. 77.)

Fractures of the Leg.—Fractures of the leg may be treated almost without exception by the pillow, instead of splints. When there is extreme obliquity of the fracture, however, splints are preferable. The pillow may be bound firmly round the leg by three or four straps. It produces neither abrasion nor irritation of the skin, and no discomfort from undue pressure. (Mr. F. C. Skey, p. 78.)

AFFECTIONS OF THE SKIN.

ANTHRAX.—The mere extent of a crucial incision is of little consequence in comparison with its depth. A great length of wound is a needless increase of risk and suffering to the patient, yet, if not deep enough to allow free vent to the dead core and matter, it is worse than useless. (Mr. M. H. Collis, p. 134.)

I believe that, as a rule, anthrax need not be cut at all. (In some cases, however, the use of the knife is necessary.) As soon as the parts get support the extension of sub-facial exudation ceases. This support must be given round

the margin of the inflamed part, by means of spiral strapping with adhesive plaster. The efforts of the matter to get vent are then directed to the surface and the centre, and the necessary sloughing and ulcerative processes are more rapidly performed. (Mr. M. H. Collis, p. 134.)

Carbuncle and Sloughing Sores.—Carbolic acid is one of the best caustic applications we have. It is a strong caustic when undiluted, as well as antiseptic. (Mr. Turner, p. 260.)

BURNS.—Mr. Skey treats his cases of burn by the free application of a solution of nitrate of silver, ten grains to the ounce. The burnt surface is then covered with cotton wool. The pain is increased at first, but it rapidly subsides. This is not applicable where there is much destruction of tissue. (Mr. F. C. Skey, p. 132.)

Severe Burns.—*Internal Administration of Belladonna.*—As Belladonna diminishes that state of the nervous functions under which reflex inflammations are likely to originate, it is a remedy which ought to be administered in cases of severe burns, for death from this cause, in the majority of cases, arises from ulcers of the intestine, pneumonia, &c., which may be called reflex inflammations. Opium is contra-indicated. (Mr. Hutchinson, p. 133.)

CHRONIC ULCERS.—*Opium.*—The more chronic the ulcer, the larger its size, the more aged the subject, the more remarkable is the influence of opium in effecting its cure. A dose of ten or fifteen drops of tincture of opium night and morning, will in five or six days cause a pale flat bloodless ulcer to exhibit a number of minute red points, which daily increasing in number rise up and form healthy granulations. Cases of twenty years' duration are frequently easily cured by this simple means. Opium judiciously employed has a most salutary effect on the constitution. (Mr. F. C. Skey, p. 133.)

ENLARGED BURSÆ.—When a bursæ, as that on the knee, is enlarged, the treatment usually adopted is blistering. This is quite ineffectual. The most successful plan is to pass a moderately strong silk thread through it. In a period varying from three to ten or twelve days it is converted into an ordinary abscess. The thread may then be withdrawn, and the abscess treated like any other. The bursa is forever obliterated. (Mr. F. C. Skey, p. 133.)

FAVUS.—*Carbolic Acid.*—A solution of carbolic acid in glycerine (in the proportion of one part of the acid to twenty-five of glycerine) may be applied with satisfactory results. The crusts must first be removed. (Dr. J. Watson, p. 261.)

GANGLIONS ON THE BACK OF THE WRIST.—These are usually ruptured by a smart blow from the back of a book, or are pricked by means of a lancet, and emptied of their contents. These plans are successful if the contents are completely evacuated. If any portion, however small, is left behind, the case is not cured. A thick pad of lint must be placed over the emptied cyst and a bandage tightly applied, that the opposite sides may unite, which they will usually do in forty-eight hours. (Mr. F. C. Skey, p. 133.)

GANGRENOUS AND FETID SORES.—Use carbolic acid as a lotion. Freely diluted with water its caustic properties are lost, but its antiseptic and astringent powers still remain. (Dr. J. Watson, p. 260.)

LUPUS.—*Carbolic Acid.*—Carbolic Acid dissolved in glycerine is one of the best applications we have for lupus. It may also be dissolved in acetic acid. (Mr. C. de Morgan, p. 260.)

PARASITIC AFFECTIONS OF THE SKIN.—In the five parasitic affections of the skin (Favus, Trichosis, Mentagra, Alopecia areata, and Chloasma or Pityriasis versicolor,) depilation is wholly unnecessary, except in mentagra (sycosis). The local treatment consists in removing crusts by thorough washing and combing of the hair, repeated daily, and when this is accomplished, in rubbing into the entire scalp, but most into the diseased patches, an ointment consisting of one part of the nitric oxide of mercury ointment, diluted with three parts of fresh lard. But constitutional treatment is also necessary. In favus, a disease of the scrofulous diathesis, cod-liver oil and iodide of iron must be administered. In some cases arsenic may be administered "with the most brilliant success." In chloasma (which occurs on

the body) the skin may be sponged with a spirituous solution of bichloride of mercury in almond emulsion. (Mr. E. Wilson, p. 126.)

PITYRIASIS.—One form of pityriasis, *Pityriasis versicolor*, depends upon the presence of a parasite, and is curable only by its destruction. This may be readily accomplished by the sulphur vapor-bath, and the use of a weak nitric acid lotion during the day. When pityriasis occurs on the head, the hair should be cut moderately short, and the head washed once or twice a week with the yolk of egg and warm water, and every night the following liniment be well rubbed into the roots of the hair:—nitric oxide of mercury, ten grains; glycerine, half an ounce; cerate, one ounce; or ammonio-chloride of mercury, ten grains; cerate, one ounce. Tonics, as iron, quinine, mineral acids, or arsenic are frequently administered with advantage. (Mr. G. Nayler, p. 131.)

SMALL-POX.—*Sarracenia Purpurea*.—The decoction requires to be carefully prepared; the root should be thinly sliced, and boiled in a closely covered vessel; and for adults the quantity of the root should be increased to three or four ounces to the three pints of water, and about eight ounces administered in the twenty-four hours, in four doses. Its action in small-pox is unmistakable. (Dr. J. Taylor, p. 37.)

TINEA.—The head having been thoroughly cleansed, the crusts removed, and the hair cut close to the scalp, paint the surface over with the oleum picis juniperi (oil of cade). The next day wash the head with soap and commence depilation. When a small extent of surface has been freed from hairs, brush it over with a solution of the bichloride of mercury to destroy the fungus. Four or five hours after the operation anoint the head thoroughly with a parasiticidal ointment, containing the yellow subsulphate of mercury, in the proportion of about half a drachm to each two ounces of lard. As the depilation cannot be completed at one sitting it must be proceeded with daily until complete. (M. Bazin, p. 130.)

[It is probable that the employment of the oil of cade may be omitted, as M. Hardy, another eminent authority on this subject, does not employ it.]

AFFECTIONS OF THE EYE AND EAR.

ATROPINE.—*Gelatine Atropine Paper*.—The trouble of removing the little squares of paper, imbued with atropine, is sometimes considerable, and may be avoided by employing gelatine rolled into very thin sheets instead. This must, of course, be divided into little squares, each containing the proper amount of atropine. It becomes completely and rapidly dissolved; and after its introduction no further trouble is required. (Mr. Streatfeild, p. 147.)

Amount of Atropine Necessary to Dilate the Pupil.—The quantity of atropine generally used for the purpose of dilating the pupil is far too great, having the effect of paralysing completely the accommodation of the eye, with consequent disturbance of vision for five, six, or more days. The square of $\frac{1}{16}$ th of an inch of atropine paper, as used by Mr. Streatfeild, contains $\frac{1}{16}$ th of a grain of sulphate of atropia; $\frac{1}{16}$ th of a grain, however, very effectually produces dilatation, which lasts nearly twenty-four hours. The accommodation is very slightly affected by this amount, and recontraction may be readily produced, if desired, by Calabar bean paper, which has not hitherto been prepared sufficiently strong to counteract the action of a larger quantity of atropine. Both kinds of paper may be obtained from Messrs. Savory and Moore. (Mr. E. Hart, pp. 148, 152.)

CALABAR BEAN.—The Calabar bean has the most energetic effect in causing contraction of the pupil; it acts painlessly, quickly, and without any irritation. Besides cases of prolapse of the iris through a corneal wound from accident, it will, probably, prove valuable in those annoying cases where after extraction of the lens the iris prolapses, and will not remain out of the lips of the corneal wound. The spirit extract, dissolved in glycerine, is an excellent and convenient preparation; but the prepared paper, saturated with

a tincture of the bean, and then dried like the atropine paper, suggested by Mr. Streatfeild, is the most portable form of preparation, and will be, consequently, most commonly used. The tincture of the bean requires dilution with about ten parts of water, lest the spirit prove injurious. (Mr. T. Nunneley, p. 149.)

CHRONIC CATARRH OF THE AUDITORY MEATUS AND TYMPANUM.—In cases of chronic catarrhal inflammation of the meatus and tympanum, when there is a red and granular condition of the membrana tympani, with or without minute polypoid growths, no treatment is better than the introduction of a little powdered alum. It may be blown in through a piece of india-rubber tubing, or introduced on a camel's-hair brush. (Mr. Hinton, p. 178.)

CILIARY BLEPHARITIS.—After removing the scales which cover the margin of the lid, apply tincture of iodine to the affected parts. It should be diluted with an equal quantity of distilled water, and applied with a camel's-hair brush. (Dr. Fano, p. 149.)

"CUPPING" OF THE OPTIC DISC.—"Cupping" of the optic disc is supposed to be a positive evidence of pressure on the retina. It is usually seen in cases of glaucoma. This cupping is, however, sometimes seen apart from glaucoma, and even where the eyeball is not hard. The usual explanation of its mode of production cannot, therefore, be correct. (Mr. H. Walton, p. 158.)

DISPLACEMENT OF THE PUNCTA.—The puncta ought to face inwards upon the surface of the globe, otherwise they do not drain its surface of the superfluous amount of tears. Should they be everted, or pushed away by an enlargement of the caruncle, this may be removed, or the canal may be laid open, and so converted into an open drain. Where the punctum and canal are of normal size, this operation is most easily done by a pair of scissors especially adapted for the purpose. If the puncta are contracted, a very fine director, or a fine probe bistoury is more convenient than scissors. It is important not to wound the mucous lining of the canal, except at the part where it is laid open. The passage of a fine probe every two or three days will prevent reunion of the divided edges of the canal. (Mr. G. Critchett, p. 139.)

FISTULA LACHRYMALIS.—The first thing is to restore permeability of the nasal duct in the usual way, and then to close the fistulous aperture by paring the edges of the skin, and bringing them together with fine sutures, so as, if possible, to obtain union by the first intention. (Mr. G. Critchett, p. 146.)

INFLAMMATION OF THE TYMPANUM IN CASES OF DEAFNESS.—Place a piece of pretty firm elastic tubing in one nostril of the patient, and whilst he is in the act of swallowing, the other nostril being firmly closed, let the surgeon blow air forcibly in. This is founded on Mr. Toynbee's discovery, that the eustachian tube is naturally closed, but is opened by the tensor and levator palati muscles, during the act of deglutition. The entrance of air into the tympanum, when the plan recommended is tried, may be heard by means of the ordinary otoscope. (Mr. Hinton, p. 179.)

IRIDECTOMY IN GLAUCOMA.—In the onset of an attack of acute glaucoma, when there is pain and increased tension of the eye-ball, it is unnecessary to resort to the severe operation of iridectomy. The division of the ciliary muscle, as recommended by Mr. Hancock, generally so relieves the more urgent symptoms, that the after-treatment becomes a matter of little or no anxiety as to the ultimate condition of vision. But in the more advanced stages of the disorder, iridectomy should be at once resorted to. (Mr. J. Hogg, p. 170.)

The operation of iridectomy is by no means universally adopted by the profession as the best and only means of cure for glaucoma. But it is admitted by its opponents, that by all ordinary treatment the disease is quite incurable. Glaucoma is a term applied to, probably, several morbid processes, by which vision is destroyed; all, however, having this, in common, that they destroy the natural elasticity of the globe. Iridectomy at once restores *this elasticity*, and any sight existing at the time of the operation is preserved.

Moreover, the restoration of elasticity to the eye-ball gives to the partially paralysed retina the best chance of recovering some of its functions and sensitiveness. (Mr. G. Critchett, p. 153.)

The benefit derived from iridectomy is not from any direct effect on the iris, but solely in consequence of the evacuation of the aqueous humour. It is not the iridectomy which does this, but it takes place as an inevitable step of the operation. The evacuation of the aqueous humour is of the greatest use, not only in glaucoma, but in all inflammations of the eye-ball; for in all, there is over-distension of the globe, and by no other means can this over-distension be so effectually relieved. It may be, and generally is, necessary to repeat the tapping more than once; but no harm accrues from a repetition of this mild operation, and this can scarcely be said of an operation in which a portion of the iris is removed. This proceeding must, however, only be considered as an aid, and to be used along with other means. (Mr. H. Walton, p. 155.)

The indiscriminate use of iridectomy is fraught with danger. It is far from a slight operation, and serious evils not unfrequently attend, or follow its performance. Many of the cases for which it is recommended are amenable to general treatment. (Mr. W. Cooper, p. 160.)

OBSTRUCTION OF THE EUSTACHIAN TUBES.—*Politzer's Treatment.*—To ascertain whether an eustachian tube is pervious or not, let the patient swallow a little saliva, the mouth and nose being closed; if it is pervious, the surgeon will hear most distinctly a faint crackling sound, produced apparently by a slight movement of the membrana tympani. This can be heard by means of the stethoscope placed upon the patient's ear, or by means of the otoscope, an elastic tube about eighteen inches in length, and ivory tipped at both ends for introduction into the external meati of surgeon and patient. In old standing cases of obstruction, where no treatment directed to existing inflammation is required, mechanical treatment can alone be of any use. Politzer's instrument consists of a piece of catheter open at the end and several inches long, to which is attached a pear-shaped india-rubber bottle. During the act of swallowing, the tube being inserted into one nostril which is tightly closed over it, the air is expelled forcibly from the ball. This must be repeated daily. (Dr. McCall Anderson, p. 173.)

OBSTRUCTION OF THE NASAL DUCT.—The first step in the operation of catheterising the nasal duct is the slitting up of the canaliculus. This is done best by means of a very fine pair of scissors, with the points slightly rounded. It may also be done by means of a very fine probe-pointed bistoury, or by a fine director and a sharp triangular knife. The operator should be provided with a set of probes graduated of different sizes. The bulbed probes recommended by Mr. Pridgin Teale, of Leeds, are more readily passed, and less likely to lacerate the mucous lining than those ordinarily employed. A moderate sized probe may be commenced with, and must be passed carefully into the sac, and then down the nasal duct. This requires great care and management. It may be left in a short time, and the operation must be repeated every three or four days. (Mr. G. Critchett, p. 143.)

PROLAPSE OF THE IRIS.—The use of Calabar bean has proved of singular benefit in many cases of prolapsed iris. In one very marked case which occurred recently at St. Mary's Hospital, it saved from excision a large portion of the iris. Fully a fourth of the iris had prolapsed through the corneal wound. A small square of the Calabar bean paper was introduced beneath the lid, and firm contraction of the pupil produced. The lid was closed, and a pad strapped over it. The wound healed, and the iris was saved. (Mr. E. Hart, p. 152.)

STRICTURE OF THE CANALICULI.—The situation of the stricture is generally where the little mucous canal opens into the sac. This can be ascertained by passing a fine bulb probe in the direction of the canal towards the sac, that is, inwards and slightly upwards. If the probe has entered the sac, it is brought at once against the firm unyielding inner wall; whereas, if a point of stricture be reached, the resistance felt is elastic, and, as the probe is pushed on, the parts around it may be observed to move with it. If there

is stricture of the lower canal only, lay open the upper one, and it will suffice to carry off the tears. If there is stricture of both canals, and there is much inconvenience resulting, pass a broad lancet-pointed needle, guarded, along the canal as far as it can be carried; then, as soon as the point of stricture is reached, the sheath must be drawn back, and the point pushed forward into the sack, its direction may then be changed so as to pass it perpendicularly down the nasal duct. A probe must then be passed down the nasal duct. (Mr. G. Critchett, p. 144.)

MIDWIFERY, AND THE DISEASES OF WOMEN, ETC.

ACUPRESSURE IN OVARIOTOMY.—Instead of using ligatures which act more or less as foreign bodies—or the clamp which frequently causes dangerous dragging on the pedicle, all hemorrhage may be arrested by acupressure, and danger from both these sources avoided. After removing the tumour pass a glass headed needle two and a half inches long, twice through the ovarian stalk, at a point a short distance from the cut extremity. A portion of tissue must be left out on either side to which no compression is applied, that it may supply with blood and vitality the strangulated stump of the ovarian stalk. To compress the stalk sufficiently use a loop of strong tinned iron wire, twisting it half round the headed end of the needle, and then drawing it with sufficient tightness to prevent any discharge of blood from the inclosed vessels. A slender cylindrical iron hood, three quarters of an inch in length must be placed over the sharp end of the needle to prevent injury from it; and this hood must be fixed to the head end of the acupressure needle by a duplicature of slender silver wire. The whole may now be allowed to return into the abdomen, the needle being carefully placed across the brim of the pelvis, but having a string attached to the headed end and left hanging out of the wound. In about three days or less the needle may be pulled away by means of the string, and the small hood will come with it.—(Prof. J. Y. Simpson p. 214.)

CERVIX UTERI.—*New Instrument for Dilating.*—Dr. Priestley recommends an instrument similar in principle to one sometimes used for stricture of the urethra, invented by Mr. Henry Thompson. It is somewhat similar to a uterine sound, but composed of two lateral halves. These halves are separable at the portion corresponding to the cervix uteri, by means of a screw in the handle. (Dr. W. O. Priestley, p. 215, Mr. R. Ellis, p. 217.)

FIBROUS TUMOURS OF THE UTERUS.—Two years ago, Mr. Baker Brown showed that it is quite unnecessary to enucleate and remove fibrous tumours of the uterus, as they may be destroyed by gouging out a portion of their tissue. He recommended preliminary to this, incision of the os and cervix. He now finds that this incision will alone not only arrest the hemorrhage but the growth of the tumour. In some cases it decreases in size, and where small it will entirely disappear, more especially if of recent origin; and even where gouging is required, a much slighter operation is sufficient. Mr. Brown now never uses "Harper's instrument," but only a pair of long handled blunt-pointed curved scissors. It is very important that the incisions and whole vagina should be carefully and thoroughly plugged after the operation, with oiled lint, to prevent exposure to the air and consequent hysteritis. These tumours appear to be of very low vitality, and the slightest interference with them stops their growth. (Mr. I. B. Brown, p. 222.)

HAIR-PIN IN THE FEMALE BLADDER.—An interesting case is recorded by Mr. Porter of Dublin, in which a hair-pin was removed from the female bladder. He accomplished the dilatation of the urethra by the successive introduction of tents of prepared sponge each of larger size than the preceding one. Having passed the index finger of his left hand into the bladder, he seized one prong of the pin with a pair of fine forceps, and having fixed the other prong against his finger he withdrew the pin easily. (Mr. G. H. Porter, p. 232.)

INVERTED UTERUS.—Supposing that by some mischance the uterus becomes inverted, with a morbidly adherent placenta, should the placenta be separated before the uterus is returned, or should both be returned and the placenta then be peeled off the womb? If only partially adherent remove the placenta at once, but if completely adherent return the whole. By this plan the placental site is less exposed to the air, and there is less hemorrhage. The attached placenta saves the uterus from bruising, and the sooner an inverted uterus is returned the better, as every moment lost renders its return more difficult. (Dr. A. L. Kelly, p. 188.)

IRRITABLE UTERUS.—*Bromide of Ammonium.*—Bromide of ammonium has an almost magical power of allaying uterine irritation and pain, in cases in which pain alone is the disease. A smaller dose than ten grains should never be given; it may be given in this dose every one, two or three hours according to circumstances. If given in cases of painful menstruation with increased flow it will also frequently arrest the excessive hemorrhage. (Dr. G. de Griffith, p. 231.)

LACTATION.—*To cause a Flow of Milk in the Female Breast.*—Make use of Faradisation; that is, localise the galvanic current on the breast, instead of passing the current through distant parts or with the poles far asunder. The magneto-electric, voltaic, and other machines will do, not excepting Pulvermacher's portable chain battery of 60 or 120 elements excited by vinegar, but Dr. Skinner uses one made by Horne and Thornthwaite. The positive pole is to be pressed deep into the axilla, whilst the negative is lightly applied to the nipple and the areola. The current should only be such as is agreeable to the part. The poles are to be kept steadily in this position for two or three minutes, the two poles are then to be pressed into or as it were imbedded in the mamma on each side of the nipple, and to be raised and reimbedded, observing that both poles are raised and reimbedded together. This is to be done all round the nipple, and over the breast, particularly on the upper surface; this may occupy two or three minutes, not more. It may be repeated daily on both breasts. In many cases which seemed hopeless this was followed by the secretion of milk. (Dr. T. Skinner, p. 200.)

OVARIOTOMY.—The temperature of the room should be raised to 75°. It is better to operate without chloroform on account of the violent retching often following the use of it, but females often insist on the use of this drug, and we are obliged to consent. The large incision is to be preferred to the small one. It is better to have a bold and large incision, at once affording plenty of room for easy manipulation, aided by the eye, instead of dragging cysts or solid masses through small openings without a knowledge of what attachments may possibly exist behind unseen, and unfelt by the finger. (Dr. C. Clay, p. 202.)

In performing the operation of ovariectomy it is only necessary to make an incision two or three inches in length through the abdominal parietes, and it may afterwards be enlarged if necessary. The operator must not cut down without a director, however carefully he does it, for it occasionally happens that a knuckle of intestine is held by adhesions in front of the tumour, and it would run great danger of being cut. The best position for the operation is between the legs of the patient, the thighs being held apart by assistants. After removing the tumour never fail to examine the other ovary, for it is frequently diseased; if so, it is better to tie the pedicle and remove the ovary. Every clot of blood must be removed from the cavity of the abdomen, but simply fluid from the cyst need not be removed if small in quantity, because sponging irritates the peritoneum. To avoid the escape of blood into the peritoneum during the operation, an assistant is required on each side to grasp the edges of the wound with warm flannels, and to hold them everted as the incision is made. If the wound bleed, the blood comes into the flannel; and if the intestines rise up the flannels keep them back. The bandage used after the operation must be one which can be slackened or tightened at pleasure, otherwise the patient will suffer great discomfort. It is as well to have it in one piece fastened in front by pieces of tape, which can be tied or untied at pleasure without disturbing the patient. (Mr. I. Baker Brown, p. 208.)

PESSARIES.—Dr. Clay has contrived to support the womb by simple wire loops bent into various shapes, so as to be adapted to most of the malpositions of the womb. We cannot describe the shape of these loops, but refer the reader to the woodcuts at page 182. (Dr. C. Clay, p. 181.)

PROLAPSE OF THE FUNIS.—Pass the cord up to the fundus of the uterus enclosed in the hand, and hook it over the highest portion of the fetus. This may easily be done during the absence of a pain. (Sir R. Crofts, Dr. J. L. Earle, p. 197.)

RECTIFICATION OF OCCIPITO-POSTERIOR POSITION OF THE FETAL HEAD.—There is no doubt but that rectification of an occipito-posterior position of the fetal head may be accomplished by the accoucheur in many cases. When the head is free above the brim it can be done by grasping the head with long straight forceps, which must be gently turned until the head is brought into the desired position, the handles being at the same time pressed back against the perineum. Such revolution sometimes occurs spontaneously. It is rare, however, that circumstances call for interference at this stage of labour. When the head has descended to the floor of the pelvis, should rotation not spontaneously occur (which happens under ordinary circumstances), we must interfere by a combination of manual and instrumental forces, if manual force alone does not succeed. By using the vectis and the fingers we can often succeed in causing the forehead to move upwards and backwards, and rotation to occur. The ear must be brought quite to the side, and the anterior fontanelle raised during the absence of a pain, traction being of course made with the vectis on the occiput. (Dr. W. Leishman, p. 191.)

RUPTURED PERINEUM.—In performing a plastic operation for ruptured perineum the following points are of importance. Before commencing the incisions, place the left forefinger on the mucous membrane to mark exactly the extent of incision intended. When the sphincter has been lacerated carefully bare the mucous membrane of the bowel, but do not cut it through. Always remove any cicatrised bands, Nature's attempts at union, which may be formed in the injured parts. Never stop in the operation on account of hemorrhage. Use a needle much longer than the one ordinarily employed, so that so great a sweep may be made that what usually requires two stitches may be done in one. When the cut surfaces are brought in apposition all bleeding will cease. When the sphincter is torn through, the superficial fibres on each side must always be divided on *both* sides (for the sphincter is a double muscle), otherwise there is an injurious strain upon the apposed parts. (Mr. I. B. Brown, p. 226.)

SHORT *versus* LONG FORCEPS.—In every case in which the long forceps are employed the short ones may quite as readily and effectually be employed. The long forceps may without injury to practical obstetrics be obliterated from the list of midwifery instruments. (Dr. J. Thompson, p. 183.)

UTERINE PORTE-CAUSTIQUE.—A very simple and efficient little instrument is made and used thus: A long silver probe with an olive-shaped enlargement an inch and a-half from its extremity must be attached to a handle of convenient length. Having bent it to the curve required by the particular case, arm it with the nitrate of silver by melting the latter in any convenient vessel. The end must be cleaned thoroughly before it is introduced, that none of the caustic may enter the uterus. (Dr. F. D. Lente, p. 241.)

VESICO-VAGINAL FISTULA.—In paring the edges of the fistula, it is most essential that the mucous membrane of the vagina should alone be removed to the extreme margin of the opening, and that the walls of the bladder be left untouched by the knife; so that, although the opening in the vaginal wall is enlarged when the edges are pared, the opening in the vesical wall is larger than previous to the operation. (Mr. G. Pollock, p. 221.)

MISCELLANEA.

BROMIDE OF POTASSIUM.—Bromide of potassium has an action distinct from the iodide. It has what may be called an alterative action, relieving certain forms of chronic disease, as syphilitic skin affections. It exerts a most powerful influence on the generative organs, lowering their functions in a remarkable degree. It hence possesses valuable powers in diseases dependent on, and accompanied by excitement or over-action of the generative organs. Sir Charles Locock uses it in hysterical epilepsy and other nervous affections connected with uterine disturbance. It may be given with advantage in nymphomania, priapism, and in certain forms of menorrhagia. Lastly, it appears to produce an anæsthetic condition of the larynx and pharynx; for this purpose the salt of potassium acts equally well with the salt of ammonium. *Bromides* act chiefly on the nervous system, *iodides* on the mucous membranes and secreting organs. (Dr. A. B. Garrod, p. 262.)

DEATH FROM CHLOROFORM.—*Cause of.*—It is of very little use watching the pulse in cases in which chloroform is administered, for the first step towards death from chloroform is not from paralysis of the heart, but from paralysis of the diaphragm. It is the respiration, not the circulation which must be watched. The pulse is merely a reflex indication that respiration is right. Fatty heart has nothing to do with death from chloroform; nor does even valvular disease contraindicate its use, as has been shown by hundreds of instances.) (Dr. C. Kidd, p. 264.)

DIGITALIS.—This drug is a tonic, not to the heart alone, but to the organic muscular system generally. It is a most valuable remedy when given in the treatment of dilatation, and is dangerous only in hypertrophy. It hence requires to be given with great caution in aortic regurgitant disease. (Dr. Fuller, Dr. Sutton, Dr. Wilks, p. 60.)

EXPLORATORY PUNCTURES.—Dr. Alexander Wood's syringes for subcutaneous injections may be used for the purpose of exploratory punctures, as thereby a considerable quantity of fluid can thus be obtained for examination. Small cysts, such as ganglia, may also be emptied in this way; and afterwards, if necessary, injected with iodine. (Dr. J. Brisbane, p. 213.)

LACTUCARIUM, OR EXTRACT OF LETTUCE.—Lettuce has not been included in the *materia medica* list of the British Pharmacopœia. It is almost, or quite inert as an anodyne. As much as sixty grains of lactucarium, or extract of lettuce, fails to produce any relief to pain. (Dr. A. B. Garrod, p. 255.)

READY-MADE PLASTERS.—Boil 100 or 150 grains of common starch in one ounce of glycerine. You have now a stiff glutinous compound which sticks close to the skin, and can be easily removed and re-applied. Instead of ordering belladonna or opium plasters, mix three grains of sulphate of atropia with a few drops of glycerine, and then incorporate it with one ounce of this stiff glycerine ointment, and spread it thickly on gutta percha cloth or oil-silk. Morphia and other alkaloids can be mixed in the same way. (Dr. Tilt, p. 246.)

SALTS OF MORPHIA.—The hydrochlorate is the only salt of morphia introduced in the British Pharmacopœia, the acetate being omitted. The reasons are, that the hydrochlorate is readily manufactured, forms very beautiful crystals, of a definite composition, and is not liable to change on exposure to the air; whereas the acetate is very difficult to crystallise, and is a salt liable to decompose, to lose some of its acetic acid, and to become much less soluble. (Dr. A. B. Garrod, p. 253.)

VERATRUM VIRIDE.—This drug certainly can depress most thoroughly, but it cannot be used as an arterial sedative without depressing the vital powers. (Dr. J. Watson, Dublin Medical Press, March 2, 1864, p. 223.)



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